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## **ABOUT JOURNAL**

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# VIRTUAL ENTERPRISE APPLICATION IN SCIENCE PARKS - EVALUATION OF THE RESEARCH

Petr Čížek

**Abstract:** *The purpose of the contribution is to present the virtual enterprise and its positive influence on the company's competitiveness.*

*The first part of the contribution is focused on the virtual enterprise. The virtual enterprise is new and dynamic way for enhancing the competitiveness of the company. However small and medium enterprises are limited by their resources and capabilities to effectively implement modern types of corporate structure such as virtual enterprise. Therefore science and technology parks should be prepared to provide a sufficient support in enhancing tenant's competitiveness. However the support should be focused only on particular part of the virtual enterprise lifecycle – dynamic phase. Dynamic phase is consisted of partner identification and enterprise configuration.*

*The second part of the contribution is focused on the survey amongst science and technology park tenants and the interview with partner Science Park in the Czech Republic. The results are that tenants already have experience with similar cooperation to the virtual enterprise and therefore the implementation would not be that hostile. Secondly, the tenants would welcome a support from the science and technology parks in terms of virtual enterprise implementation.*

**Keywords:** *Virtual enterprises, Science parks, Business incubators.*

**JEL Classification:** *M10.*

## Introduction

The current global market is dealing with challenging competitive environment. For small and medium enterprises it is difficult to reach a business opportunity. When the company is hoping for the success it must keep competitive advantage against the competitors. The recent trend shows the tendency of streamlining, which means that companies are trying to focus on their core competencies. But in many cases a new business opportunity requires a capability which company does not have access to. Therefore this new business opportunity can be achieved by creation of virtual enterprise where the opportunity is reached through integration of each virtual enterprise member's core competence. Thus, this is the reason why the modern types of structures such as virtual enterprise emerge. The other reasons of existence of virtual enterprises are to reduce expenses, increase capacity, broaden markets and improve knowledge.

One of the main characteristic attribute of small and medium enterprises is its flexibility. Hence small and medium enterprises are suitable for establishing emerging high-flexible types of organizations such as virtual enterprise.

# 1 Statement of a problem

## 1.1 Virtual Enterprises

There are many definitions of virtual enterprise. For example Byrne (1993) defines virtual enterprise as “a temporary network of independent companies, suppliers, customers – even rivals, linked by information technology to share costs, skills and access one another’s markets. It will have neither central office nor organisational chart”. [1]

According to Putnik & Cunha (2005) the definition, the virtual enterprise (VE) is defined as “enterprises with integration and reconfiguration capability in useful time, integrated from independent enterprises, primitive or complex, with the aim of taking the profit from a specific market opportunity. After the conclusion of that opportunity the VE dissolves, and a new VE is integrated, or it reconfigures itself in order to achieve the necessary competitiveness to respond another market opportunity” [5]

According to Salamon and Sir (2005) there are 4 main characteristics of VE

- 1) Core competencies
- 2) Flexibility
- 3) Trust
- 4) Excellence

[6]

Core competencies are knowledge, experience, skills, technology, data, know-how, contacts and sources which every member of VE brings to the cooperation. By combination of these competencies, the VE (and its members) reaches a new level of competitiveness. [6]

The other characteristic is flexibility. VE should be the synonym for flexibility. VE has to adapt to the new market transformation and flexibly react to it. However the reaction is not enough in the modern economy. VE should use the extended access to the member’s knowledge to predict the market so it is prepared for the change before it occurs. [6]

The trust is the essential part of the VE. Without sufficient trust between members, VE cannot be established. The members share between each other their knowledge, skills, know-how etc. Therefore without trust the VE won’t function ideally. On the other hand blind faith between members is neither recommended. [6]

The reason why VEs are established is excellence created by combination of members’ core competencies. VEs are effective type of organization which provides high quality and reduction of costs. [6]

There are several challenges which companies have to face in establishing the virtual enterprise. The major challenges are according to Kim et al (2007) effective synchronization and integration of business components. Especially according to Wadhwa et al. (2009) the main role of integration of business components is made by ICT. Crispim and Sousa (2008) add the selection of suitable partner as another major challenge. [4][11][2]

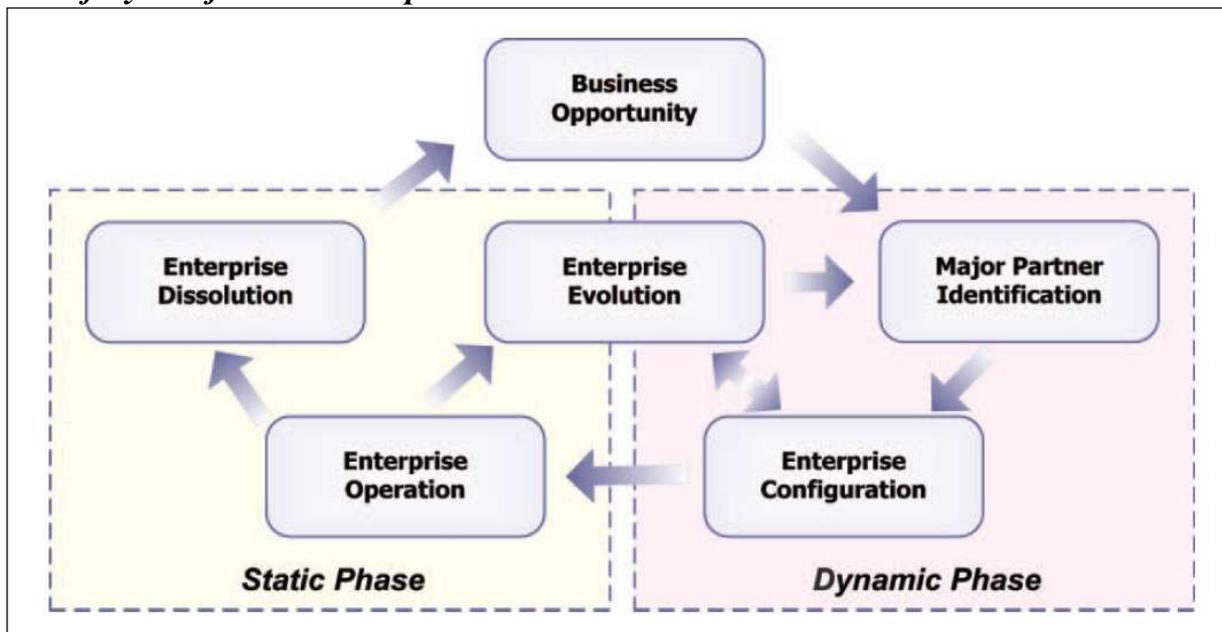
The virtual enterprises are going through the lifecycle. Figure 1 shows the lifecycle of virtual enterprises. The life-cycle is divided into six parts:

- 1) Business opportunity: A new business opportunity is identified through market analysis.

- 2) Major partner identification: At this stage, the major partner is trying to be found. There are several candidate enterprises (CE) in consideration.
- 3) Enterprise configuration: At this stage, candidate enterprise become member enterprise (ME) and VE architecture is defined including information, resources and communication to allow integration of the diverse business components.
- 4) Enterprise operation: At this stage, the VE is operated through collaborative business processes. VE should monitor current market and business processes continuously.
- 5) Enterprise evolution: At this stage, the VE is face with major business change and it has to adapt new configuration.
- 6) Enterprise dissolution: As business opportunity disappears the VE is dissolved.

Source: [4]

**Fig. 1: Lifecycle of virtual enterprise**



Source: [4]

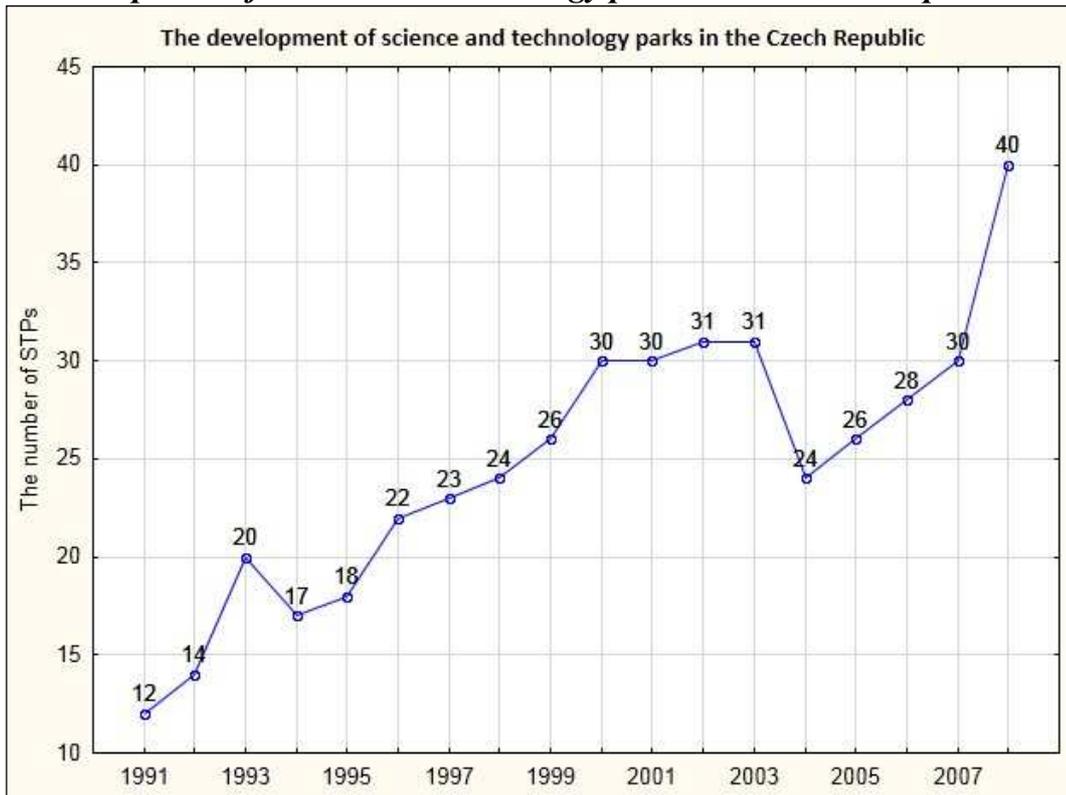
Crispim & Sousa (2008) focus on the issue of partner identification. Partner selection is multi-criteria decision making problem which is based on incomplete or non-available information. According to their research there have been outlined the main challenges in partner identification. Namely these are

- 1) A concern about selecting the right partner. The selection of suitable partner is crucial for the VE formation.
- 2) A need to obtain complete and diversified information about each potential partner.
- 3) Subjectivity of data. The evaluation of the results can be influenced by manager's subjectivity.
- 4) A concern about time depended issues. The conditions of the business opportunity may change during the partner selection process. Therefore the
- 5) A need for simplification of the results.

[2]



**Fig. 3: The development of science and technology parks in the Czech Republic**

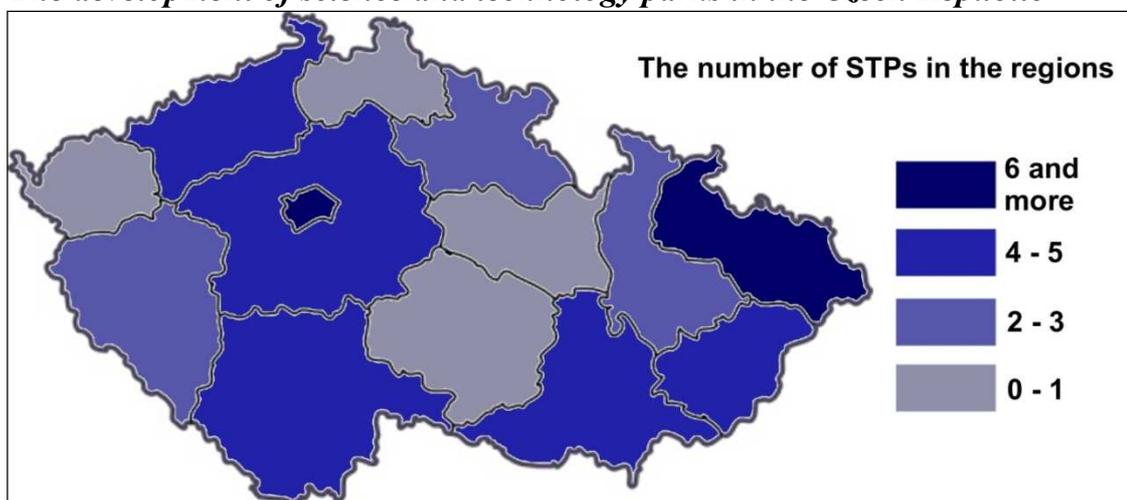


Source: [9]

The other view on the situation is from the current number of STPs in different regions. Figure 4 reveals the noticeable differences between the regions.

Especially Liberecky, Pardubicky, Karlovarsky and Vysocina regions have dismal number of STPs. On the other hand Prague and Moravskoslezsky region have the highest number of STPs in the Czech Republic. The actual number of science and technology parks may vary from the map, because some of STPs are not interested in official STP certification. To partially avoid the inaccuracy, the other database called “Technology profile of Czech Republic” was used. Most of the STPs are duplicate but some new STPs were added to the list.

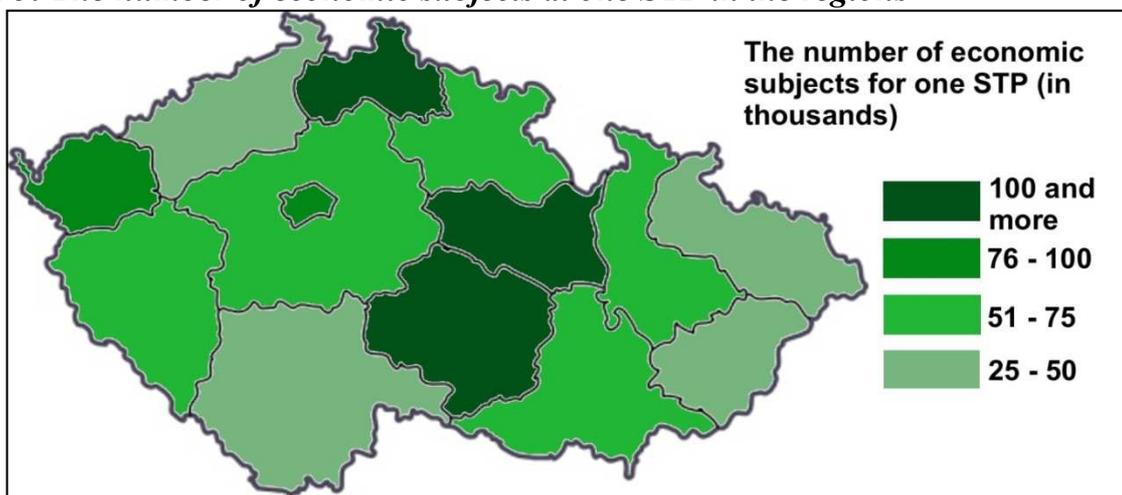
**Fig. 4: The development of science and technology parks in the Czech Republic**



Source: author

However according to the high economical and demographical differences between regions, the absolute number of science and technology parks is not representative enough. Figure 5 shows the number economical subjects at one science and technology park. Some regions remained subnormal but some can be seen in the new view. The main difference is that region Prague is not the leading player amongst regions. The number of economic subjects is on average level. On the other hand the bottom of the chart regions mostly remains on their positions. The very strong region in terms of science and technology parks is Moravskoslezsky region. The most probable explanation is that Moravskoslezsky region is a region with high unemployment in long-term view. Hence, the government and EU financial support is aimed there for region economic growth stimulation. The same explanation applies for Ústecký region which suffers from the same issues. The highest potential region appears to be Pardubický region. It is the region with high economic productivity but with only one science and technology park.

**Fig. 5: The number of economic subjects at one STP in the regions**



Source: author

## 2 Methods

The survey about the virtual enterprises was made amongst twenty-one tenants across the STPs in the Czech Republic. The questions were designed to get the information about the experience with virtual enterprises and the expected approach from STPs.

The next part of the research was made by semi-structured interview with the managing director of Technological Centre of Hradec Kralove ([www.tchk.cz](http://www.tchk.cz)). The information acquired was how the support of virtual enterprise is managed and if the tenants are establishing the VE.

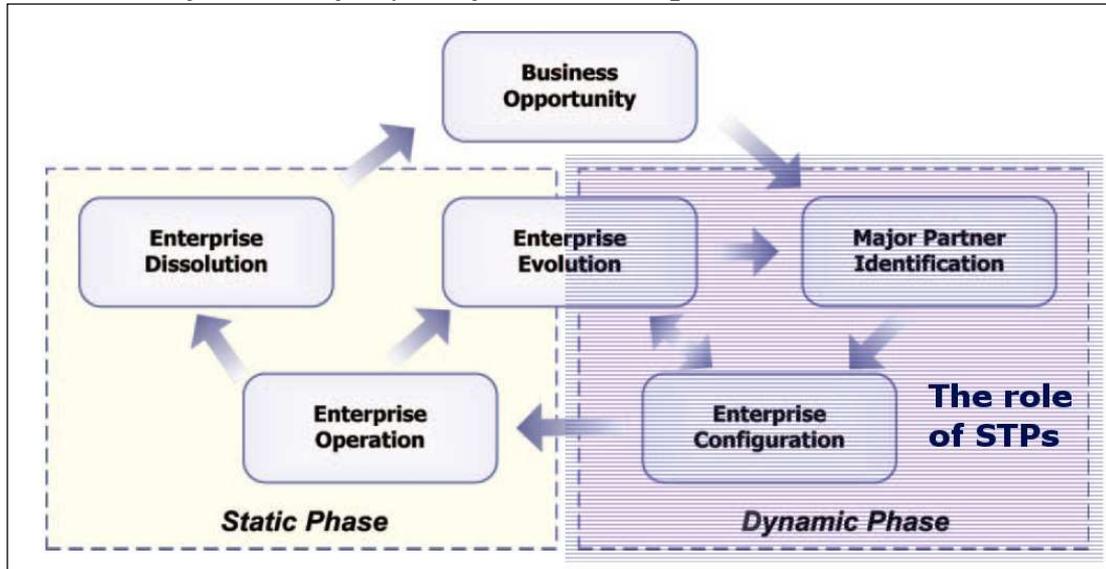
## 3 Problem solving

### 3.1 Using the VE in science and technology parks

According to the life-cycle of virtual enterprises the role of science and technology park (STP) is in establishing (managing) dynamic phase – as it is drawn on Figure 6. The science and technology parks as a platform for the SME's support are capable of giving the right direction for their tenants. Science parks may possess the information, facilities, skills and contacts which start-ups and SMEs cannot easily get. Therefore when there are challenges of establishing virtual enterprises, science parks can play a major role in the process.

On the other hand the virtual enterprise operation should be mainly operated without the influence of science and technology parks. The same rule applies for enterprise dissolution. The enterprise evolution (which occurs in the case of change of market conditions) can be solved in both ways – with and without the participation of science and technology parks.

**Fig. 6: The role of STP in life-cycle of virtual enterprise**



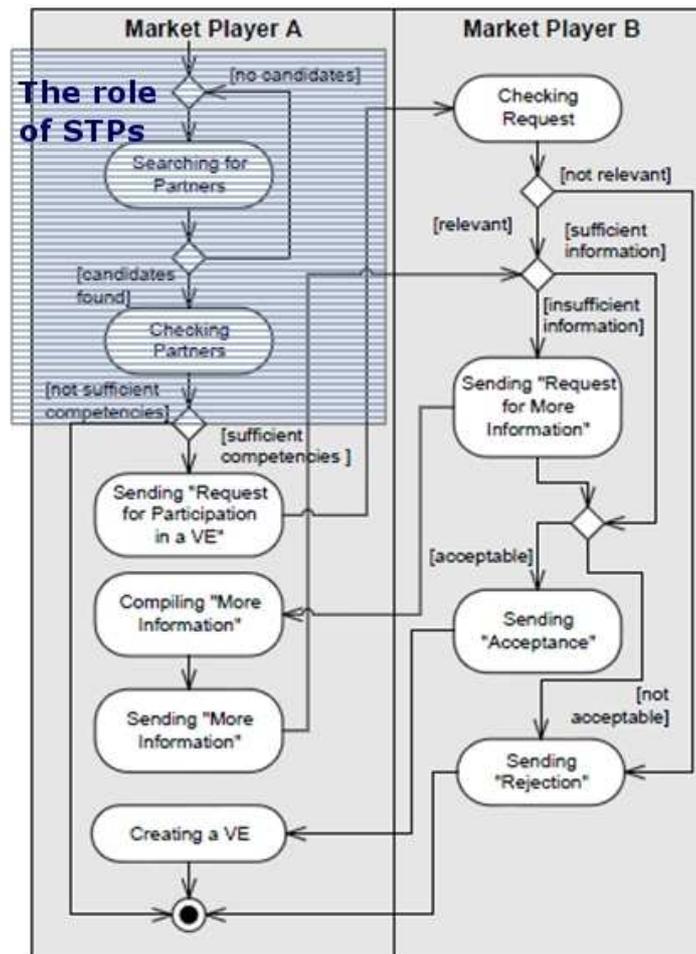
Source: author

According to the main concerns in partner identification, STPs are able to secure some of the most important parts such as providing complete and diversified information about potential partners and reducing the subjectivity of the results. The small and medium enterprises are limited with contacts, especially when the contacts are into the foreign country. The costs for establishing the partnership is higher the more exotic partner it is. The cultural and language barriers can be for many small and medium enterprises insurmountable. Science parks have the ability to enable enterprises to contact each other and give them appropriate support. Therefore the tenants are less concerned about selecting the right partner.

The Figure 7 shows the role of STPs in the VE Formation process especially the role in finding the right partner. At the process scheme it is possible to see that the role of the STP is in the early stage of VE formation. Therefore there is the place where STPs should aim their support.

On the other hand the exchange of the information between potential partners should remain only between them. They should decide by themselves whether the partner is acceptable or not. The next possible opportunity for science and technology parks arises in actual VE creation. STPs should provide to the new VE members framework of VE creation so the formation of VE would be accomplished without major difficulties.

**Fig. 7: The role of STP in VE formation process**



Source: author

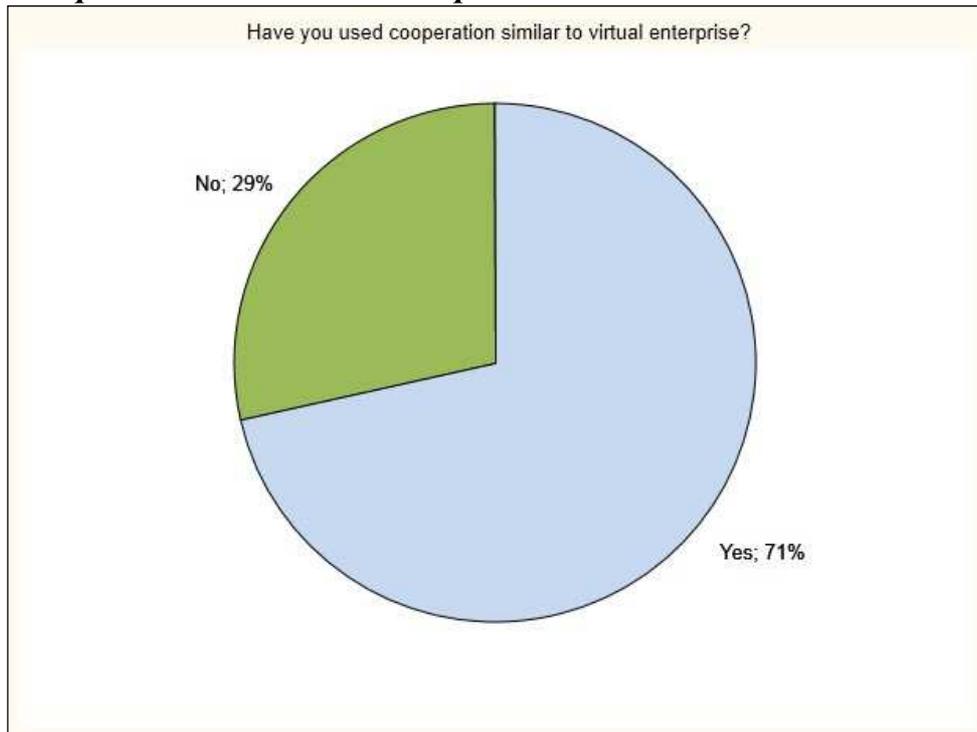
Finally there is a crucial need for synchronization and effective communication. The costs for establishing comprehensive IT environment are mainly very expensive. Science parks often already have sufficient IT equipment or the costs can be spread between tenants. Authors and Affiliations

The template is designed so that author affiliations are not repeated each time for multiple authors of the same affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization). This template was designed for two affiliations.

### 3.2 The situation of virtual enterprises in the STPs

Figure 8 shows the experience with cooperation similar to virtual enterprise (the explanation of the term was part of the questionnaire). 70% respondents answered that they already have an experience with cooperation similar to virtual enterprise.

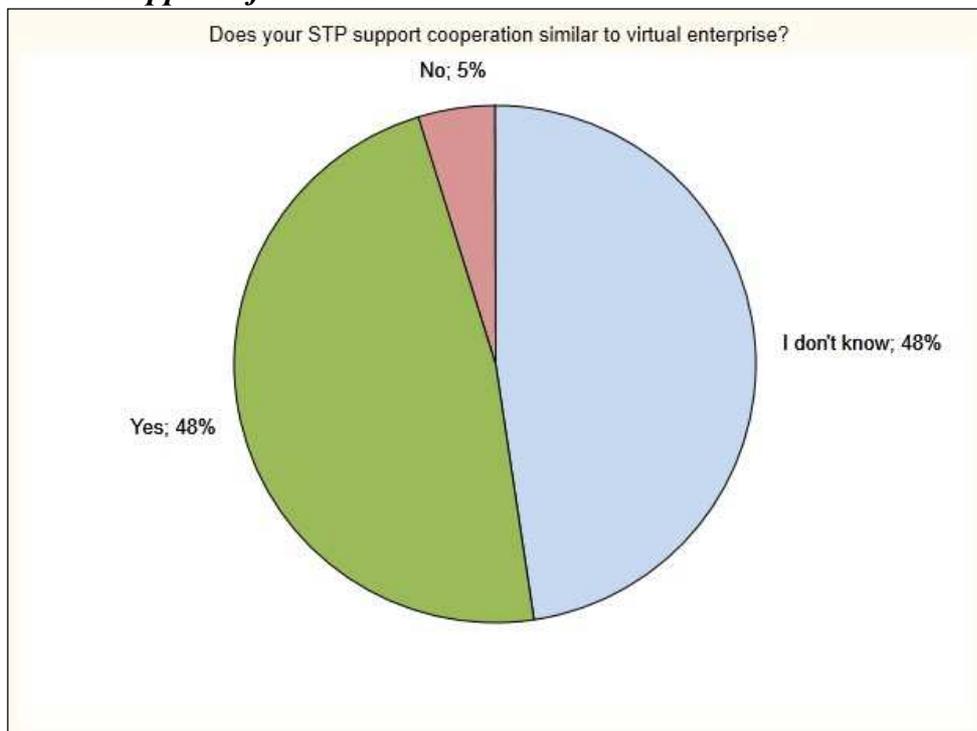
**Fig. 8: The experience with virtual enterprise**



Source: author

Figure 9 shows the situation within the STPs. The respondents were asked whether they know if there is any sort of support of virtual enterprises in their STPs. In this case 48% answered yes. 48% answered I don't know and 5% answered that no.

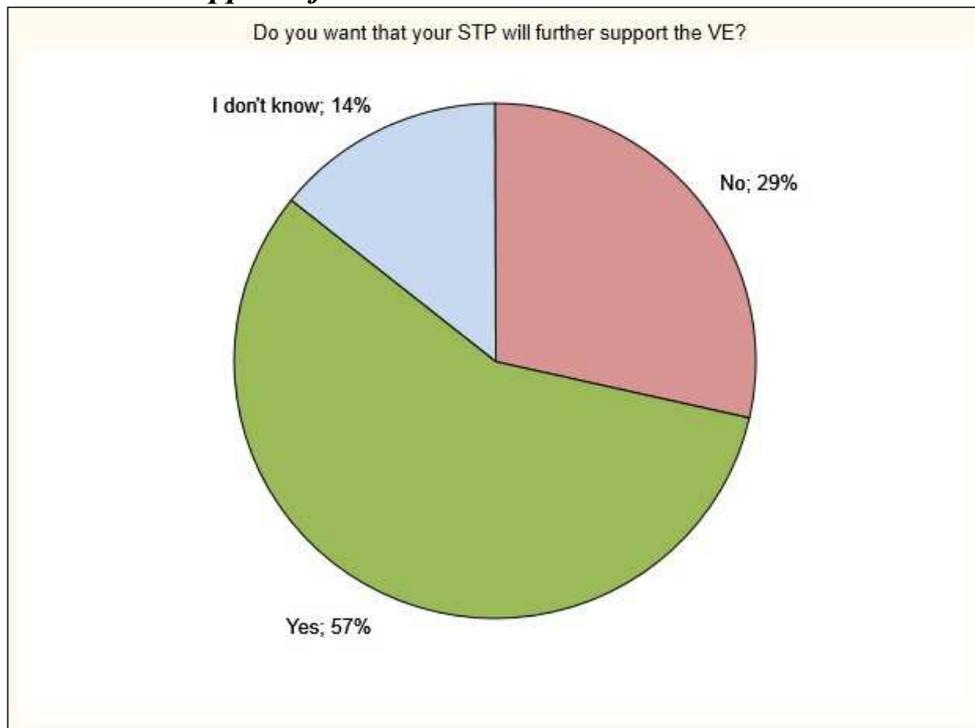
**Fig. 9: The current support of VE in STPs**



Source: author

Figure 10 shows whether tenants want to get further support of VE in their STP. Most of the respondents answered yes (57%), minority (14%) answered that they don't know and 29% answered no.

**Fig. 10: The current support of VE in STPs**



*Source: author*

The interview with managers of science and technology park in Hradec Králové shows that Technological Centre of Hradec Kralove does not actively support the VE, but they think that it is an interesting way how to reach a business opportunity. However there was recognized one case of VE formation between two tenants. Incubated firm focusing on web coding made a VE with another incubated web design firm and together they got the contract. Without the VE they would not meet the criteria of the contract because of the lack of capabilities. There was no case of VE established by tenant and external company.

In summary, according to the interview:

- 1) Virtual enterprise is not supported implicitly in the TCHK.
- 2) Tenants are willing to establish VEs.
- 3) The formation of VEs is out of control of STP.
- 4) External companies are not willing to establish VE with tenants.

## **Conclusion**

The virtual enterprise is new and dynamic way for enhancing the competitiveness of the company. It can be defined as “a temporary network of independent companies, suppliers, customers – even rivals, linked by information technology to share costs, skills and access one another’s markets “. Large companies can (according to their financial and experience background) establish the VE easily. However start-ups or small and medium enterprises suffers under the lack of skills, finance and time to deal with the VE formation.

At this stage the science and technology park can play the main role. In the life-cycle of virtual enterprise the STP should focus on the initial phase of VE creation (dynamic phase). STPs should offer sufficient information, skills and contacts for the most difficult part of the virtual enterprise's lifecycle = the partner identification.

The situation in the Czech Republic can be described as steady growth. However there are huge differences in the regions. The highly economically strong regions have a large number of STPs and many regions have only one or none STP.

The tenants who responded in the survey answered that mostly they have experience with similar cooperation such as virtual enterprises. Moreover the majority of respondent is interested in having a possibility of getting information and support in terms of virtual enterprises from science and technology parks. Therefore the VE is not seen as something hostile and under proper supervision can represent valued tool for tenants.

According to the interview with the managing director of Technological Centre of Hradec Kralove (TCHK), there is a lack of support from TCHK. However without any intervention there was at least one VE established between tenants at the TCHK. On the other hand the cooperation with external companies is not common at the moment.

The recommendations for the science and technology parks:

- a) The VE is a new dynamic tool how to increase tenant's competitiveness.
- b) STPs' role is in the dynamic phase of VE's lifecycle.
- c) Tenants are not reluctant to establish VEs.
- d) The VE formation could fill the lack of tenant's capability.
- e) The VE between tenants is a possibility how to reach new market opportunities.

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# MANAGERIAL FUNCTIONS OF ORGANIZING AND LEADING PEOPLE IN MLM ORGANIZATIONS AND THEIR MANIFESTATIONS IN HISTORICAL SCHOOLS OF MANAGERIAL THINKING

Zita Košnarová

**Abstract:** *The article looks into managerial functions of organizing and leading in multilevel marketing (MLM) organizations, focusing on the creation of organizational structures and the style of leadership. Paper is trying to identify what historical trends of managerial thinking these functions are derived from and what other trends influenced them. The functions are studied in a concrete MLM organization in which the organizational structure and the style of leading people are defined. The article determines specifics typical for MLM organizations in the sphere of organizing and leading. Also, it identifies the activities of the manager including the overlapping of individual managerial functions. On the basis of comparison it is then possible to find theoretical assumptions that are applied in the practice of MLM organizations.*

**Keywords:** *Multilevel Marketing, Organizing, Leading, Organizational structures, School of Managerial Thinking.*

**JEL Classification:** *M10.*

## Introduction

Multilevel marketing (MLM) or network marketing is a widely used term nowadays. There are many organizations on the market that use this approach to distribute products and expand sales network. The history of multilevel marketing and its principles are known. However, much less attention is paid to the theoretical background of the management of such organizations and their distributors. The objective of this article is to determine historical origins of the managerial functions of organizing and leading people (namely, the original models for the creation of organizational structures and the style of leadership) in schools of managerial thinking, and, on this basis, to analyse managerial functions in MLM organizations in the course of work of their distributors, and to determine what historical trend of management has been influencing the organizing and leading of people in MLM organizations. Meeting this objective will lead to the enhancement of the theoretical basis for multilevel marketing. These managerial functions have been studied in a concrete MLM organization, which has been active on the territory of the Czech Republic for a long time and does business in the manufacture and selling of dietary supplements and cosmetic products.

## 1 Statement of problem

At the beginning it is necessary to define managerial functions, focusing on the functions of organizing and leading people, which will be projected onto the development of individual schools of managerial thinking.

## 1.1 Managerial functions

The arrangement of managerial functions can be viewed from many perspectives. In this case we use the classification of H. Koontz and H. Weihrich [12] who divided managerial functions into planning, organizing, selection and deployment of workers, leading and supervision. The article focuses on the organizing and leading of people. The function of organizing represents the assigning of tasks to the members or sections of an organization and the coordination of their activity. This function concerns the arrangement of relations among individual sections of the company. Thus the goals of organizing mainly consist in creating an organizational structure and in adapting the organization to new conditions. According to Bělohávek [1] organizational structures may be divided into line organizations and line-staff organizations, and according to their activity into functional, functionalist, divisional, mixed, procedural, matrix-based and project-based organizations.

Managing people is a process via which subordinate workers and their activities are directed towards fulfilling a task while motivation plays a supportive role. One of the characteristics that determine the manager's attitude is the leadership style. The authoritative style includes executives who concentrate powers and decision-making in their hands. The democratic style allows for a certain part of the powers to be delegated to lower levels of the hierarchy while responsibility of the leader is preserved as far as final decisions are concerned. The liberal style ranges from the passive style, when the executive's activity in leading people is rather limited, over the liberal style allowing subordinates to participate strongly in decision making, to the laissez faire style, which represents the complete absence of any interventions. [13, 5]

## 1.2 Organizing and leading in historical schools of managerial thinking

Historical schools and management theories are described in various ways in the specialized literature. This article adopts the view proposed by Porvazník [20] who classifies these schools into following categories.

### 1.2.1 Scientific management

The first period approaching management as a scientific discipline was the period of *scientific management*. Frederick Taylor thought of the management of people in scientific terms, focused on productivity and examined what the reasons for varying productivity of workers are. The characteristic features of leading people are: [2]

- Defining the working procedure according to the best worker,
- use of the wage based on performance in order to motivate workers,
- supervision of the observance of a defined working procedure,
- workers job is not thinking but just performing what they are expected to do.

These characteristic features of the scientific approach manifested themselves in the increasing productivity and effectiveness of individual activities. An important element was the supervision over workers and their performance. The leading of people was executed without emotions with a strictly determined approach. [2] The authoritative style of management is demonstrated here to a wide extent. [3, 22] Taylor's approach also has an effect on the organization of the company. Taylor formulated the functional type of the organizational structure that is the basic organizational form. Under such structure workers form groups based on the similarity of their tasks, skills or activities. The structure is grounded in the division of individual units of the company according to specializations.

However, instead of one superior there are several superiors who are entitled to make decision. [4]

Henry Fayol, unlike Taylor who focused on examining manual professions, was concerned with the activity of executive workers. He defined five functions of administration (forecasting, organizing, commanding, coordinating, controlling) and fourteen principles of successful management. The ones concerning the organizing and leading of people included, for instance, the principle of centralization, unification of management and supervision, the principle of a single superior, the creation of a clear hierarchical line of superiors and subordinates, and fair rewarding. [20] Fayol recommends horizontal division of labour according to types of activities and vertical division of labour according to levels of management. The functionalist type of the structure was expanded with so-called Fayol's transition bridge, which we call the managerial staff nowadays. [24]

The fixed hierarchical line of power and the clear determination of standards, rules and powers were principles recognized also by Max Weber. His bureaucratic model of organization is based on the following processes: [20, 21]

- Leadership is impersonal, require authority and grounded in objective rules,
- motivation focuses on physical and economic needs,
- the hierarchy of rights and obligations is precisely defined by the structure.

The classical theory of management is, as to the managerial function of planning and leading, characterised by several elements proposed by Taylor, Fayol, as well as Weber, despite partial differences in their views. The organization is understood on the formal basis, it is centralised and forms a self-contained whole in which the activity of employees is governed by standards and rules. Their observance is strictly required and supervised, which requires the authoritative style of leadership. [21]

### ***1.2.2 Behaviourist management***

A new trend that occurred in the course of the twenties of the 20<sup>th</sup> century focused on psychological and social problems of the workers. This line of thinking presents the employee as a human being influenced in their performance by many more factors. It was Abraham Maslow who came up with the idea that the employee is not limited to material needs and the need to earn money but, at least with some workers, the opportunities to satisfy one's social needs and achieve self-fulfilment are of significant importance for their performance. [1]

Douglas McGregor was concerned with the very issue of the man's attitude to their work and their motivation for it. The assumption that people are forced to work only due to their economic needs and are not in fact interested in their work is derived from the theory X. The main assumptions of this theory are: [2]

- People do not want to work and are essentially lazy,
- they are not able to maintain work morale, to act independently and responsibly,
- they are forced to work by economic motivation,
- workers are not able to control themselves and their work has to be supervised.

This is an authoritative style where power and all decisions are concentrated in the hands of the superior. Strict supervision over work and over the motivation to work, either

a positive one (a reward) or a negative one (the threat of a penalty), forms the basis of this type of management. The organizational structure is grounded in the centralization of power, clearly set rules and the hierarchy between superiors and subordinates.

The theory Y is derived from the belief that workers have a positive attitude to work, are able to control themselves and have higher needs that often relate to the work itself. The leading of people is grounded in inspiration, support, stimuli, creativity and listening to other people. The theory Y is based on the following: [2]

- Work is natural for mankind and workers are responsible and self-reliant,
- work means satisfaction not only of economically motivated needs,
- workers are able to make own decisions and motivation based only on economic stimuli and supervision over workers is not the basis of management.

The leadership style adopted according to the theory Y maybe democratic or even liberal when the superior is willing to delegate part or all of their responsibilities to their subordinates. However, similarly as with the theory X, the theory Y cannot be applied in general. A certain group of workers is not capable of self-control and therefore the application of the theory X is favourable. On the other hand in theory Y for instance in the case of tasks that are generally disliked the theory X is effective. [2] Organizing and powers according to the theory X are centralised with clearly set competences, as is the case with the relationship of superiority and inferiority. Based on the characteristics specified by the theory Y, it is possible to adapt the organization in the way that it is not strictly based on a single leader and allows for decentralization, teamwork on projects and freedom for creativity and decision making. Therefore the organization need not be strictly hierarchical as the theory X requires.

### ***1.2.3 Modern management***

After the Second World War the interdisciplinary approach to management gains prominence, this is mainly attributable to technical development. In the sixties the first proposals for a new solution to the organizational structure occur since the most common form of management by then, i.e. line-staff management, had proved to be unsuitable for the organizational arrangements of new forms of management. The utilization of information systems and computer technology began to create new opportunities for the application of Fayol's transition bridge. Line leaders and staff specialists began to cooperate closer which resulted in the diversification of responsibility and in creation of structures with shared responsibility accompanied with the absence of the traditional line hierarchy and led to the creation of other structures, such as the network structure, the matrix-based structure, the project-based structure, the team structure, the fractal structure and the procedural structure (so-called procedural amoebas). [1, 6] The line may be partially preserved in such types of organisations; the new forms constitute a supplementary structure for concrete, possibly temporary project or a concrete task. The management of people in such organizational structures allows for the preservation of superiority and inferiority in the basic structure, however the aforementioned new forms of organizational structure often apply and require the liberal style of leadership and the decentralization of decision-making powers, responsibility and the fragmentation of competences. [6]

### ***1.2.4 Empiric management***

Empiric management is related to the analysis and evaluation of findings from managerial practice. The main objective of this orientation is the development and determination of concrete recommendations for managerial activity based on the study of practice. Proponents of this approach therefore processed substantial experience and proposals for solutions of real problems in concrete corporations. The ability to give a true practical picture of the problem and react to it in advance is the objective of this school of management. [20] An important representative of this approach is P. F. Drucker who made a significant contribution in the period in the form of the MBO technique (Management by Objectives). The basis of this technique is to set goals that shall conform to the SMART rule. Organizations and people are then controlled and evaluated on the basis of these goals. The evaluation of goals achievement is used to draw conclusions within the entire hierarchy of management. [21] As far as the approach to leading people is concerned, empiric management focuses on informal styles of management. The proponents of empiric management often refuse to get closer to the authoritative style of leadership and prefer more liberal and informal styles of management in organizations and less intense supervision. [20]

### **1.3 Multilevel marketing and organizational structure in MLM organizations**

Since the article is concerned with multilevel marketing it is necessary to explain what multilevel marketing is and what types of organizing exist in MLM. There are plenty of companies producing and distributing products for very different people's needs. Firms and companies must invest huge sums of money into means of massive promotion so that people discover a new product was launched. Therefore, it is natural that some firms look for different ways how to spread information about new products without high promotion expenses. Particularly multilevel marketing characteristically uses tools of marketing communication such as direct or personal sale, and these tools significantly saves expenses for spreading brand and product awareness. [10]

Fujii and Taji [8] describe multilevel marketing as a sort of business that has a unique system. All members who are also customers present products to acquaintances and recruit them into the business network. They also highlight that the organizations dispose of social community character and structure geared towards outward openness.

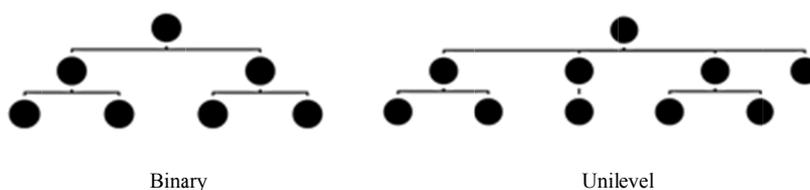
According to Olar a Minculete [17] the term of multilevel marketing stands for a term that describes a marketing structure used by some companies as part of their overall marketing strategy. The structure is designed to create a marketing and sales force by compensating promoters for sales and for creating a down line of distributors and hierarchy of multiple levels of compensation in the form of a pyramid. They also emphasize the importance of word of mouth communication as a basic part and main tool of MLM.

Hwee a Mun [9] define MLM as a combination of transactional and relationship marketing. Transactional marketing tries to make the sale and find new customer, while relationship marketing aims at creating a client relationship from the beginning to satisfy and retain existing customers. [16] It means that MLM operates by stipulating compensation schemes for products or services sold to customers (transactional marketing), as well as the recruitment of agents and creating long relation with them (relationship marketing). [9]

Term pyramid, which was already mentioned, is very often connected with MLM organisations. For example, Vander Nat and Keep [23] differs term pyramid from MLM and describes the approach how to distinguish MLM and pyramid. According to them pyramid organizations are those which do not demand sale of products or services. Such schemes are considered to be illegal because the main benefit for members does not come from the sale of particular product or service but benefit comes from recruiting members and taking entry fees from them.

MLM companies create an organizational structure in two parts – employees (administration, production) and distributors (creating business network). This article is concerned with distributors. They have the option to build up their own network according to rules set in advance based on the organizational structure.

**Fig. 1: Binary and Unilevel organizational structures**



*Source: Adapted on the basis of [9]*

The binary organizational structure is based on the rule that only two members can be incorporated into the first line. It means that in this plan each distributor is required to recruit two individuals only at the first level and placing them one on left and one on right. The binary plan is one of the standard compensation plans, limited in width and unlimited in depth. [19]

In the unilevel structure new members are always placed in the first line and this line is not limited as to its breadth. It is not required that every distributor shall put new members in his or her structure. Sometimes no obligatory number of incorporated members is defined. Therefore the number of members may differ with every individual (Fig. 1). [14] Thus unilevel plan is limited in depth and unlimited in width.

## 2 Methods

In order to accomplish the objectives of this paper specialised literature was researched and schools of managerial thinking were analysed. This put the theoretical basis on basic of secondary data. Other used methods were induction, deduction, and the analysis of causal relations as well as empirical investigation when the qualitative research in the form of interviews with managers in MLM organizations was used.

The objective of the qualitative research was to identify the process of work of managers in MLM company dealing with cosmetics and food supplements during spreading the distribution network. The hypothesis says that in this process all managerial functions are administered despite MLM is not a classic model of company and employee structure. Individual interviews with ten managers in five MLM organisations were carried out. All of these five MLM organizations operate in the Czech Republic in the area of cosmetics and food supplement production and distribution. The interviews lasted from September to November 2012.

For the credibility of the interviews it was necessary to vary consumer only from real manager. Consumers are members of the business network however they are not active

distributors. After the discussion with MLM representatives following criteria for interviews with particular manager were settled. Manager must be active in the company over two years and the month revenue of his own and his network must be higher than 200 000 Czech crowns. His first line of network must involve at least five active distributors. All interviewed managers fulfilled these conditions. Information acquiring was done by personal interviews concerning the process of managerial work relating to business network spreading and in which phase the managerial functions are used. The analysis was done on basis of secondary data as well as on primary data obtain by means of interviews. The primary research data were consequently organized and structures on the basis of really useful information. These data were summarized and verified. As a form of verification was chosen participant validation. [15] It means that findings were brought back to participants for studying and verifying the findings.

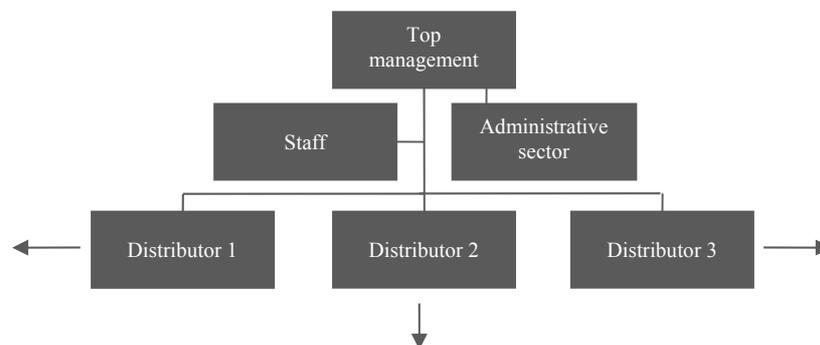
### 3 Problem solving

#### 3.1 Managerial functions and activities in the analysed organization

As mentioned above MLM organization in the area of cosmetics and food supplement were examined. A particular example was shown on one organization only because qualitative research shown that the managerial process of work in MLM companies operating in this area does not vary significantly. On the example of this company is possible to present the function of organizing and leading people in MLM organization. These functions were closely examined in MLM organization dealing with producing and distributing cosmetics and food supplement. This organisation operates in the Czech Republic over 20 years and the number of active distributors on different levels refers to 72 000. In the Czech Republic its turnover achieved 650 million Czech crowns in 2012. [18] This organization operates in 32 countries in Europe, Asia and Australia. Total turnover of the company was 313 million US dollars in 2012. Sales method is person to person, compensation plan is multilevel marketing and organisational structure is unilevel. [7]

The organizational structure is divided into two parts – distributors and the administrative sector that are subordinate to the top management. The distributors were the part that we studied. Beside distributors it includes the staff composed of the ten most successful distributors. The staff workers are not entitled to make decisions, their function is purely advisory and the top management uses them as a tool for communicating information to distributors. Four top managers form top management.

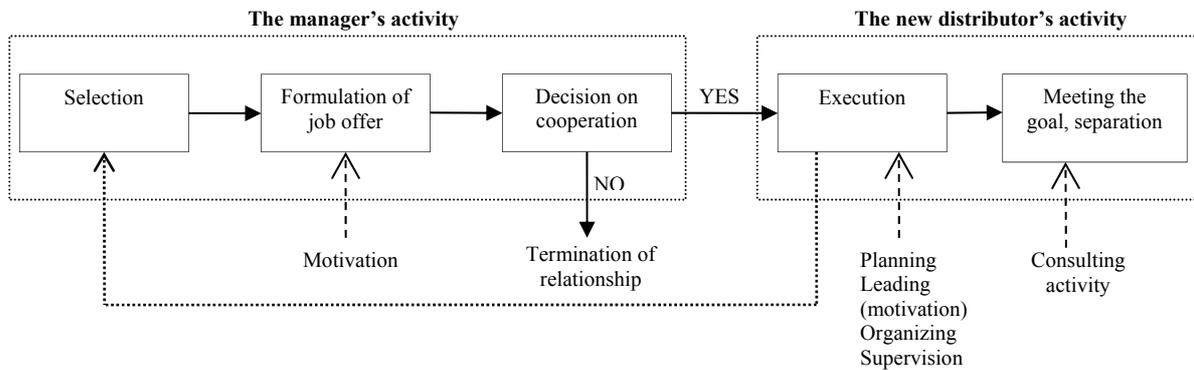
**Fig. 2: Organizational structure of the analysed organization**



Source: Author

The organization gives its distributors the opportunity to become managers on the basis of their executed work and achieved goals (sales and the expansion of the network). Activities of the manager include all basic managerial functions. Hypothesis set out in the primary research was confirmed. The following figure generally presents the activity of the distributor in the course of expanding the network and the overlapping of individual managerial functions in the entire process as was detected in the primary research.

**Fig. 3: Application of managerial functions in the course of the activity of the manager in the MLM organization**



Source: Author

When the manager intends to expand their distribution network they start their activity with the selection of workers. It is based on making a list of all contacts of the manager followed up by addressing these contacts. Another part of human resources management, i.e. the deployment of workers, is determined by the organizational structure itself (in this case unilevel) and the manager is obliged to conform to it while incorporating new members. The method used to recruit new workers in the MLM organization is represented by active direct addressing of a concrete potential applicant from the external environment of the organization. **The job offer** to the prospective distributor is always made via direct personal contact and this is also the first point when the manager motivates the potential applicant for the job offer. If the addressed person shows no interest the relationship is terminated. Otherwise the prospective applicant becomes new distributor and begins to execute his or her working activity (sales and the expansion of the network).

Another phase is the **execution** of cooperation. This phase includes the **planning** of the entire process and the follow-up achievement of the set goals that the new distributor has selected. Based on these goals, the manager will propose a strategy that should lead the new distributor towards the achievement of his or her goals. This strategy is composed of selling techniques and the techniques to expand the organization. As soon as the new distributor begins to execute the planned goals, he or she begins to make the same steps as their manager. During the execution phase the new distributor is led by their manager, their activities are directed all the time and the manager educates and motivates the distributor. This is the point where **the function of leading people** manifests itself. The function of **organizing** at the level of managers consists in incorporating the new distributor in their network based on the type of the structure and the assignment of tasks related to such position. **Supervision** is performed by the manager on the basis of turnovers, the number of new workers in the network and the quality of their leading, it means on the basis of set goals.

## 4 Discussion

According to Bělohávek [1] and also according to Kislingerová [11] every type of the organizational structure has its own features and specifics that were compared with the features of the MLM organization and the activity of its distributors. On this basis it is possible to determine which organizational structure is, by its features, closest to MLM organization.

**Tab. 1: Features of individual organizational structures in MLM organizations**

Characteristic feature of MLM organization:	Characteristic feature of organizational structure:
Strategic decisions are concentrated in the hands of top management.	Functional
Individual units (in MLM the unit means the network of a single distributor) compete with one another.	Procedural
Managers (distributors) tend to become coaches – provide advice, instructions how to work, solve problems, impart information from the management and take care of the development of their workers.	Procedural
The authority of workers is strengthened – they take over the responsibility for the result and make own decisions on how to perform individual activities.	Procedural
Higher education is needed - management, trading skills, and specific education according to specialization.	Procedural
Clear responsibility for work results.	Divisional, Matrix-based
Clearly defined career advance.	Functional
Every unit, divisions is specialized for the same task.	Divisional
Changes of values - workers have to realize that they do not work for their superiors.	Procedural

*Source: Author*

### 4.1 Organizing and leading people

The function of organizing is represented in the MLM organization at the level of the organization itself as well as at the level of distributors. At the level of the organization itself it is clear that the structure corresponds to the line-staff structure. That is, there is the top management, the staff only with advisory authority are subordinate to the top management and communicate information to managers at the level below (distributors), who are incorporated into the organization on the basis of the unilevel organizational system. According to theory the objective of organizing is to define mutual relationships and functions, which corresponds to the function which organizing serves in the MLM organization. However, a specific feature of the MLM distribution structure is that it keeps changing. As cooperation with a new distributor is started (expansion) or when such cooperation is terminated (reduction) the structure is modified accordingly. The fact that the number of units in the organization is not determined is not an obstacle but rather the basis of the organization.

Having assessed the features of individual organizational structures we can state that the activities performed by the distributors and the features of the organizational structure are, in the largest part, typical for procedural structures. To sum up, the structure of the organisation is set as the line-staff structure; nonetheless the activities performed by the distributors are more typical for procedural structures. The basis for organizing in MLM firms can be considered to lie in scientific management (the staff defined by Fayol) as well as in modern management that allows for the diversification of responsibilities and the

creation of the structures of the procedural amoeba type, which, as we have found out, corresponds by its features mostly to the activities of the distributor in the organization.

Leading people in the MLM organization brings several specifics that are characteristic for MLM systems. One of them is the relationship between the superior and the subordinate. Neither the manager, nor any of the distributors are employees of the MLM organization. They always do business on the basis of the trade licence and therefore the traditional relationship between the superior and the subordinate is missing. Thus one of the specifics influencing the leading of distributors in the MLM organization is represented by the missing relationship between the superior and the subordinate resulting in absolute freedom in the decision making of the distributor. Therefore the style of leading people in the MLM organization has been established on the basis of these specifics and on the basis of interviews with the managers as democratic or even liberal. Theory has it that in practice the generally liberal method of leading people can be considered as unacceptable and the managers have confirmed this assumption during the interviews. They have stated that too liberal approach usually ends in the termination of cooperation, which is due to the very absence of any management and authority that could clearly organize, coordinate and supervise the activity of the distributor. On the other hand, as we mentioned, the authoritative style also loses its meaning in this case. Thus the democratic or even slightly liberal style makes it possible to leave the management of work largely up to the distributor while allowing for reciprocal active communication preserving and respecting the function of the manager.

It has been demonstrated that the leading of people and their motivation in the MLM organization is based on the theory Y when the management of work can, at least partially, be left with the worker himself or herself. On this basis we can state that the leading of people is derived from the behaviourist school. According to this school the executive worker should focus on the motivation of people and leave them space for their own activity. This can be pointed out as a typical element of leading people in the MLM organization. Workers with characteristic features according to the theory X cannot succeed in the MLM organization since self-management and/or self-motivation, self-fulfilment, independence and responsibility are ruled out by this theory.

#### **4.2 Human resources management, planning and supervision**

Even though the article focuses on the organizing and leading of people, it also includes other specifics concerning human resources management, planning and supervision. It is typical for human resources management in MLM that the identification of resources of possible applicants for the job always takes place on the external labour market since workers to take up the jobs cannot be found within internal resources. Another specific is that the selection is based on active searching of prospective distributors. Thus, in most cases, the job offer comes from the organization and addresses persons that may be potentially interested. The opposite situation when the interest is manifested first by the potential worker is very rare. Planning and supervision are based on the MBO technique when goals conforming to the SMART rule are set at the beginning of cooperation. Based on these goals, the manager supervises the work of the distributors and the distributors are also rewarded on the basis of achieving the set goals. These functions are grounded in empirical management. A specific feature of the supervision is the aforementioned absence of the superior-subordinate relationship. Controlling is executed on the basis of set goals. If the manager identifies any deviation from the goal he determines the causes of such situation and possible remedial measures. However, the remedy cannot be enforced and it is

always up to the distributor whether he or she will execute it or not. It means that distributor has to be able to self-control.

## Conclusion

The objective of this article was to determine historical origins of the managerial functions of organizing and leading people (namely, the organizational structures and the style of management) in the schools of managerial thinking, to analyse, on this basis, the basic managerial functions in MLM organizations in the work of their distributors and to determine which historical trend influences the organizing and leading of people in MLM organizations. The determination of the development of organizational structures and the styles of managing people according to historical schools of managerial thinking and the follow-up analysis of these functions in a concrete MLM organization have shown that the organizing is based on the school of scientific management as well as on modern management. The leading of people has its origin in the behaviourist school since it is approached in accordance with the theory Y that allows for democratic to liberal management, which has also been identified in the analysed MLM organization. The possible contribution of this article is the contribution to the theoretical basis of the management in MLM organizations. From the practical viewpoint the article may be of value by presenting reasons why certain styles of management lead to the failure of distributors in the MLM organization.

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# ON BORDERS, BORDER REGIONS AND CROSS-BORDER RETAIL-TRADING

András Kovács

***Abstract:** In my study after introducing some basic border-theories, I will focus on an economic-related issue that has hardly been researched until nowadays: cross-border retail trade. In the theoretical part of this paper I aim to highlight the multiple interpretations and explanations of borders. After determination of some basic concepts about socio-economic borders, I introduce a new model about classification of borderland areas in which I determine 4 types of “border spaces”.*

*Following the results of latest border research agendas, I draft a new model, where the typology of cross-border factor flows and their influencing factors are introduced. Here I distinguish 3 ranges of cross-border economic flows, and 5 factors that influence these.*

*In the final part I analyse the most important findings in the field of cross-border retail trade. After distinguishing the terms “shopping tourism” and “cross-border retail trade” (from the point-of-view of the participants, aims, affected area, etc.) I present some empirical evidences about the importance and relevance of cross-border retailing related to the Western part of the Slovakian-Hungarian border area. I focus on the activity of small and medium sized retailers, and on the shopping behaviour of people living in the border area.*

***Keywords:** Border, Cross-border retail trade, Shopping behaviour, Slovakian, Hungarian.*

***JEL-classification:** R23.*

## Introduction

The socio-economic transition process in Central and Eastern Europe has dramatically changed the cross-border relations between the CEE-countries in the last two decades. The opening of borders resulted a permanent growth in cross-border activities that one still can trace nowadays. Although considerable domestic and international scientific interest focused on this issue, there are still important fields partly unresearched. Among them I want to shed light on the cross-border retail trade and other economic-related issues (cross-border SME-activity, etc.). In this paper I introduce a new model in which I make an attempt to draft the factor environment of cross-border economic (factor) flows, and after this I try to embed my empirical cross-border retail trade-research in the model. In order to prove the special characters of cross-border retail activity, I had to group and range the different kinds of border spaces. Based on the results of my empirical research, I determine the most important differences between “shopping tourism” and “cross-border retail trade”, and highlight the characteristics of cross-border shopping behaviour (spending per shopping, shopping frequency, relations between nationality, place of work, place of living and shopping).

## 1 Theories about borders

The limitations of this paper do not allow me to outline all of the border-related theories in the field of geography, regional science, economics, sociology, etc. In this way only draft

the most important classical theories can be drafted, which are necessary to understand the complexity of border-problems.

From a socio-economic point-of-view (state) borders have got more functions, among which appear openness, closeness and distraction at the same time. Tab. 1.

**Tab. 1: Interpretation of borders**

Border as the tool of separation, barrier
Border as filtering zone with gates
Border as frontier puffer zone (frontier)
Border as zone of connection

*Source: Nemes Nagy, J., 2009*

The latest border-related theories outline the multi-dimension [5] and dynamic characteristics [13] of borders. van Houtum highlights that a border can be characterised by more factors simultaneously. In the theory of van Houtum each border (or border narrative) can be placed on a line between two antagonistic counterparts, so we hardly can talk about absolute categories in case of borders, but “mixtures”, e. g. semi-open and semi-closed borders. (Many examples we can mention: the Mexico-U.S. or the Cyprian Greek-Turkish borders are well known.)

David Newman’s theory outlines the dynamic character of borders. In Newman’s model borders have got “time dimension”, they are changing permanently while determine the inclusion and exclusion of different social, ethnical, and economic groups. According to Newman, borders continually transform under the effects of current economic, social and political situation. During this transformation procedure borders are:

- 1) Established (bordering),
- 2) institutionalised,
- 3) sustained (manage),
- 4) closed,
- 5) opened,
- 6) abolished.

After some theoretical considerations, I draft the most important functions of borders. Although in some regions of the world borders become less important (due to globalisation and other regional processes (EU-integration)) [9], state borders still play a considerable role on international level. The “classical” typology of border functions is described by Guichonnet and Raffestin [3]. The authors introduce the different kinds of functions of borders, and explain their most important elements:

- Legal function,
- fiscal function,
- control function,
- military function,
- ideological function.

The above mentioned, wide range of functions well describes why borders play an important role in national, economic and military sovereignty of a country. Borders

determine the “radius of action” for the state and secure some custom incomes. Although nowadays national sovereignty is fading and the total power of the states is diminished by global actors such as international organisations (WTO, IMF) and regional integrations (EU, NAFTA, etc.), borders still have a considerable range of tasks, and many positive characters (besides the negative ones). In this way I want to argue (in conjunction with Walter Leimgruber) for the necessity of borders, not because borders can hinder negative international phenomena (e. g. economic crisis), but because they play an important role in preserving of the cultural, social, environmental heterogeneity of the world [10].

Summarising the above described, I state that borders do not carry purely negative (“bad”), or positive (“good”) characters. The existence of borders and the “goodness” of different kinds of border functions (barrier, gate, puffer and contact zone) depend on their elasticity in adaptation to the challenges of the socio-economic environment. Thus we cannot talk about the “goodness” or “badness” of borders, because they are necessary, but their “goodness” is based on their efficiency to comply with the permanently changing political, economic, social and cultural circumstances.

## **2 Spaces alongside and across borders**

Neither in the Hungarian, nor in the international literature are the terms of “border region”, “border zone”, “borderland”, “border area”, “border side region”, etc. clarified. The different authors use these terms as synonyms, although there are considerable differences among them.

That is why I would like to give an exact definition to these terms based on Haggett’s classic region-definition [4]:

Border region: a geographical space separated by one or more state borders, where the power, extent and intensity of cross-border socio-economic relations are strong and have existed for a long time.

Border area: a geographical space separated by one or more state borders, where the total lack of socio-economic relations can be observed, or their strength and intensity are weak, and the relations are quite new ones or have got a permanently changing character.

Borderside region: a region which has got a considerable length of state border compared to its full length borderline. In these regions the intra-regional socio-economic flows have got a determining character, cross-border flows do not exist at all, or are inferiors.

Borderside area: a peripheral space alongside a state border, where neither the intra-regional, nor the cross-border socio-economic flows are strong and have got a powerful character. There is no cohesion

## **3 Cross-border factor flows**

After determining the basic terms related to borders and borderlands, a new model about cross-border factor flows and about their influencing agents will be introduced.

The effects of borders on economic flows have been researched by several disciplines (geography, economics, regional science) from different points-of-views.

The economic approach describes the changes of goods between point-economies (between two point-regions). The regions have got special factor endowments, and the factor flows are limited on different levels (from the free flows to the prohibition) [1], [8].

The approach of regional sciences (such as geography and regional science) is more heterogeneous, in their theories the geographical, political and economic elements appear together and mix with different weights [2], [10], [14], [15], [16] [18].

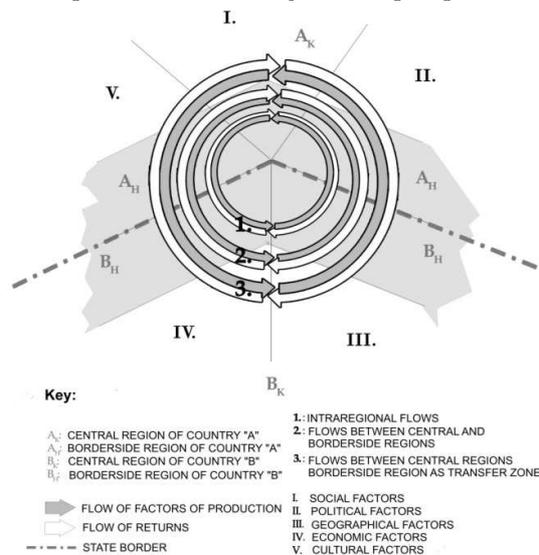
Among the newest points-of-view in the research of cross-border economic flows the “border economics approach” can be mentioned. It focuses on borders and cross-border factor flows on micro and/or macro level during the research of cross-border economic processes [5], [6].

By constructing my own border economics model I aimed the followings Fig. 1.:

1. To separate the different cross-border economic flows: I distinguished intraregional economic flows, flows between central and borderside regions, and flows between central regions (here the borderside region appears as a transfer zone).
2. To determine five factor groups that influence the economic flows at different levels and for different periods of time: economic, social, geographical, political, cultural agents.
3. To define which influencing agent has got a considerable effect on which flow-type.
4. To group the agents by their duration (short, medium or long run effects).

With this model I outlined the different types of cross-border economic flows, and their complex and reflexive influencing agents. Nowadays – especially in Central-Europe – different kinds of cross-border economic co-operations are gaining more and more importance, several entrepreneurs build new international and cross-border business relations. [11] That is the reason why the analysis of cross-border economic processes has got great importance.

**Fig. 1: Cross-border economic flows and the system of influencing factors**



	I. INTRAREGIONAL FLOWS	II. CENTER-BORDERSIDE REGION FLOWS	III. FLOWS BETWEEN CENTRAL REGIONS
I. SOCIAL FACTORS	-share of nationalities in the border region -characteristics of ethnic relations -characteristics of local society	-share of nationalities in the border region and in the centres -structure of society in both countries -characteristics of ethnic relations in the border region and in the centres	-share of nationalities on state level -structure of society in both countries -characteristics of ethnic relations on national level
II. POLITICAL FACTORS	-local politics -state-level politics	-regional politics -state-level politics	-state-level politics
III. GEOGRAPHICAL-STRUCTURAL FACTORS	-local determination of landscape -settlement structure on local level -characteristics of infrastructural connections -distance and density of border-crossings -cross-border public transport	-determination of landscape alongside the border -regional characteristics of settlement structure -characteristics of infrastructural connections on regional level	-determination of landscape alongside the border -characteristics of settlement structure on state level -characteristics of infrastructural connections alongside the state border
IV. ECONOMIC FACTORS	-economic cycles -size of local markets -structure of local production -business environment -local taxes -local disparities in price levels -level of business services -changes in cross-rates	-economic cycles -size of regional markets -regional characteristics of regional production -business environment -disparities in taxation systems on regional level -price levels in the border region and in the centres -level of business services in the border region and in centres	-economic cycles -total market sizes -structure of production on national level -business environment -disparities in taxation systems on national level -disparities in prices on national level -disparities in level of business services on national level
V. CULTURAL FACTORS	-intensity of local cultural relations -relation of national language and mother tongue(s) -mental distance – mental borders	-intensity of cultural relations on regional level -relation of national language and mother tongue(s)	-similarities in cultures of neighbouring countries -relation of national language and mother tongue(s)

underlined: short run effect      *curative*: medium run effect      bold: long run effect

Source: Author. Tech. edition: Zsuzsanna Gaál, Angéla Nagy

## 4 Cross-border retailing – theory and applied research

### 4.1 Shopping tourism and cross-border retail trade

Among the cross-border economic flows cross-border retail trade can be mentioned. This phenomenon has got decades-long tradition at the borders of the USA, Canada and Western Europe [19], and the beginning of this process goes back to the time of socialism in Hungary. Although it has got a long history, the mainstream of Hungarian cross-border research has never focused on it.

This process can be defined as follows:

Cross-border retail trade: Frequent shopping activity of people living in borderlands towards the other side of the border in order to make profit. At this type of shopping mostly FMCG-products are purchased for the households.

The importance of my cross-border research can be summarised in the followings:

- On both sides of the state borders many retailers and other retail-connected service providers are involved, so it can influence the prosperity of retail traders and has a considerable effect on the level of employment.
- Cross-border retail trade is influenced by several short-, medium- and long-term factors which modify or change its volume and direction.
- The motivation of “cross-border shoppers” is complicated, cannot be explained merely by changes of cross-rates or by different price levels.

I also wanted to clarify the differences between the terms “shopping tourism” and “cross-border retail trade”. These expressions are used as synonyms in everyday life and in scientific discussions too, but I am convinced there is a considerable difference between them. The detailed explanation of these terms exceeds the extent of this article, but in Table 2 I summarise the most important characteristics. Tab. 2.

**Tab. 2: Cross-border retail trade and shopping tourism**

	<b>Cross-border retail trade</b>	<b>Shopping tourism</b>
<b>Participants</b>	people living in borderlands	profit maker tourists (there is no spatial determination)
<b>Affected region</b>	border regions and borderside areas (as starting point and destination area)	the whole country (as a starting point and destination area)
<b>Primary aim</b>	shopping for the household (dominantly)	multiple aims: recreation, profit making, etc.
<b>Preferred product groups</b>	FMCG-products	souvenirs, gifts or durable goods
<b>Duration</b>	a few hours (less than 24 hours)	more than 24 hours

*Source: Author*

I can state that cross-border retail trading exists if the conditions, as free movement of people, goods and services are secured, and the participants (potential shoppers) are able to make profit surplus with the help of it. The net value of saving is equal to total saving minus extra costs of cross-border shopping (e. g.: costs of travelling) [17]

#### **4.2 Cross-border retail trading in the Western part of the Slovakian-Hungarian border area**

In the empirical part of my study I analysed the characteristics of cross-border retail trade alongside the Slovakian-Hungarian border. The research of this phenomenon met difficulties from more points-of-view. Partly because no previous, comprehensive research was conducted in this topic, partly because a permanently changing process had to be observed during the time of a global financial and economic crisis.

In my analysis I wanted to discuss the relations of supply and demand sides (sellers, buyers) to cross-border retail trade. I focused especially on the share of retailers' turnover deriving from cross-border shoppers, and on the behaviour of cross-border shoppers (spending, shopping frequency, shopped goods, etc.)

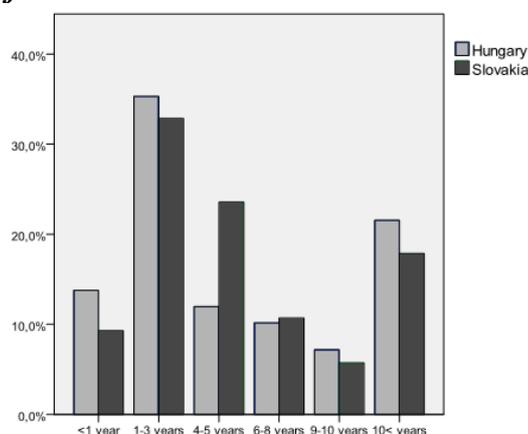
In the research standard questionnaires were used to survey retail shops and the population of the Slovakian-Hungarian borderland. The survey was conducted in November and December 2008, the final sample contained 309 shops (167 on the Hungarian, and 142 on the Slovakian side of the border). The survey concentrated on the market centres (more important towns) of the border area (in Hungary: Győr, Komárom and Esztergom; in Slovakia: Dunajská Streda, Veľký Meder, Komárno, Stúrovo). In the interviews shop keepers, managers and (if they were not available) shopping assistants were asked.

The survey of the population in the border area was carried out in April and May 2009. The sample contained 800 questionnaires, among them 784 were processed (16 could not to be processed due to missing data or another reasons). On the Slovakian side 393 persons, on the Hungarian side 391 persons' answers got into the final dataset. Before the survey I set up a representative sample on sex, age, nationality, place of residence and its closeness to the border, based on the data of the 2001 census in Hungary and Slovakia.

The analysis of all data exploited from my two researches exceeds the extent of this paper, so in the following part. Only the most important results will be focused on.

The period of operation of the surveyed retail shops shows that the majority of retailers have not got long tradition. Fig. 2. This caused some difficulties by some questions in connection with long-term macroeconomic processes (the evaluation of the effect of EU-accession, etc.)

**Fig. 2: Distribution of retail units researched**



Source: Author

By the research of shopping behaviour of people living in the cross-border area I applied a quite new approach. I divided the sample into two parts on both sides of the border. I determined two types of settlements in the border area according to the distance from border crossings. To the so called “next to the border”-settlements I listed those who live not farther than 5-10 minutes from the closest border crossing (by car), and to the “close to the border settlements” I grouped those who live in the border area, but farther than 10 minutes from the closest border crossing (by car). Since the river Danube separates the two sides (the Slovakian-Hungarian border follows the line of the river in the researched area), and there are only 3 bridges over the river in the research field, only some towns (Komárom, Esztergom, Stúrovo, Komárno) and their neighbouring villages belong to the “next to the border” area, the majority of the settlements (including settlements alongside the border but far from the bridges) belong to the “close to the border settlements”. This kind of separation of the sample will be applied in the further part of my study in order to highlight the importance of geographical distance on characteristics of cross-border shopping.

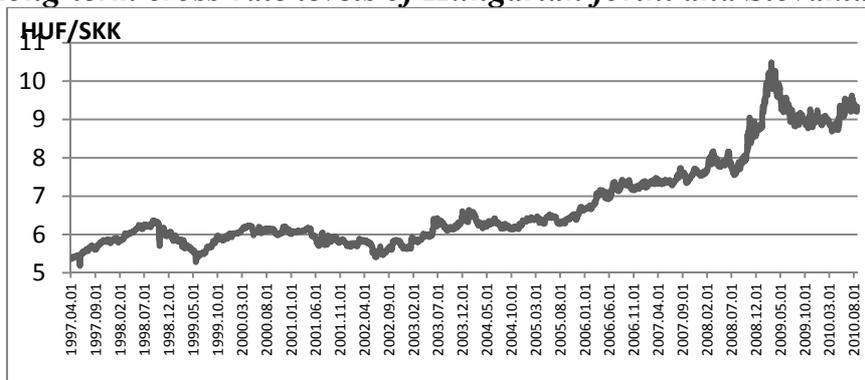
Without the detailed analysis of the different economic development of Slovakia and Hungary, I want to outline some important facts to make the context of our empirical researches easier to understand:

- Slovakia carried out a long-term economic reform process in the first years of this decade making the Slovakian economy more competitive.

- In Hungary several crucial economic and social reforms have delayed for years, so the country lost its previous leading position among the transition countries.
- Due to the deliberate reforms Slovakia managed to introduce the common European currency at the beginning of the economic crisis.
- Both countries suffer from the negative effects of the crisis. While Slovakia tries to smoothen the negative economic and social effects of the depression by issuing government securities, Hungary is forced to keep its expenditures under control (Hungary had to claim the IMF and EU loans to finance its debt in the darkest period of world economic crisis).

These above mentioned economic processes appear in the cross-rate level of Hungarian and Slovakian currency. Fig. 3. The long-term equilibrium tipped out after the appearance of macroeconomic problems in Hungary in 2006. After the breakdown of Lehman Brothers Inc., the currency-value of Hungarian forint collapsed, and reached earlier never-seen values. After the stabilisation package of the Hungarian government (and after the drawing of the IMF-credit) in 2009 the value of Hungarian national currency strengthened, but the cross-rates still did not reach the previous level neither in euro nor in USD. The Slovakian crown (until 01. 01. 2009) and the euro gave Slovakia a solid background in the time of economic crisis, Slovakian people did not have to face the collapse of their currency and economy, while in Hungary this peril was sensible for months in 2008 and 2009.

**Fig. 3: Long-term cross-rate levels of Hungarian forint and Slovakian crown\***



\*After the accession of Slovakia to the Euro-zone (01.01.2009) the conversion course of SKK and EURO was used (30,126 SKK/€) to determine the forint and crown cross-rates.

Source: Hungarian National Bank, [www.mnb.hu](http://www.mnb.hu)

The empirical research [7] was conducted in the above described economic situation, at the time of the deepest economic crisis since the Great Depression. Before I introduce my essential findings, it is important to highlight some more important facts that may contribute to the better understanding of this complex phenomenon. With the following data and facts I want to prove that cross-border retailing is influenced by several factors in accordance with my “cross-border economic flow”-model. Fig. 1.

Without a deep analysis I outline some important facts:

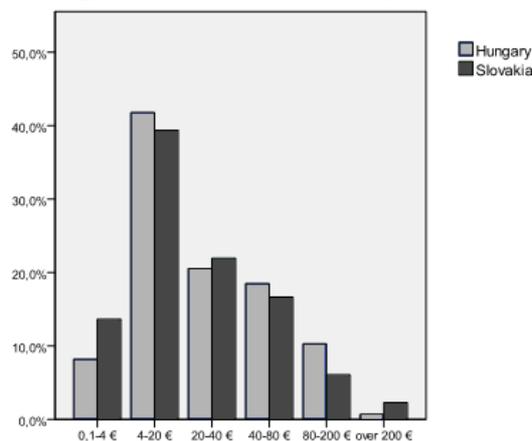
- About 70% of people living in the Slovakian side are of Hungarian nationality, so there are no language difficulties at cross-border activities.

- Many of these people still have got relatives in Hungary, so they cross the border regularly in order to visit them (or other friends).
- More thousands people living in the Slovakian side have got a job in Hungarian industrial parks (in Komárom, Esztergom, Győr, Tatabánya) and earn their wages in Hungarian currency.
- There are only three border crossings (three bridges) alongside the researched area, so people have to “flow” across the most import market centres (towns) when crossing the border.

Examining the shopping behaviour of Hungarian and Slovakian shoppers I found that the spending level per shopping are quite similar in the retail units on both sides of the border. Fig. 4. The similar data can be explained by two factors.

1. The Slovakian and Hungarian incomes stay at the same level, so the discretionary parts on both sides of the border are alike.
2. The supply side (retailers) and the preferences of shoppers are similar to the Hungarian and Slovakian sides.

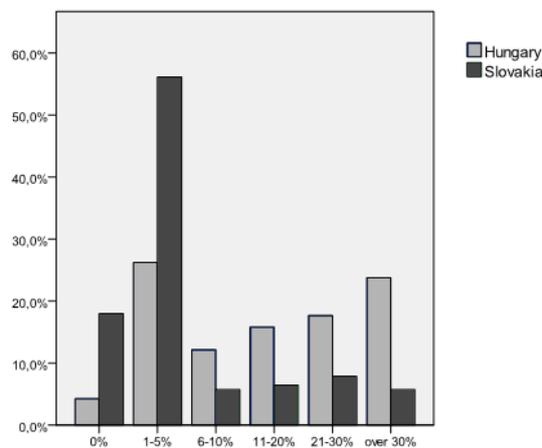
**Fig. 4: Spendings in the retail units of the surveyed area**



*Source: Author, retail shop survey*

The extremely weak Hungarian currency changed dramatically the direction and volume of cross-border retail trade in the researched area, especially in the first part of 2009. Shoppers coming from Slovakia (from the borderland’s settlements) utilised the price advantages deriving from the cross-rate levels. Fig. 3. Although according the data of Fig. 5, one may say that cross-border retail trade is basically influenced only by the level of cross-rates, I claim that this process cannot be described by only one factor. Fact no 1: the majority (80%) of retailers in the Slovakian borderside area stated that not a negligible part (generally 1-5%) of their turnover originated from Hungarian shoppers in contempt of the extreme cross-rate levels at the end of 2008.

**Fig. 5: The spending ratio of people coming from the other side of the border in the total turnover of retail units**



*Source: Author, retail shop survey*

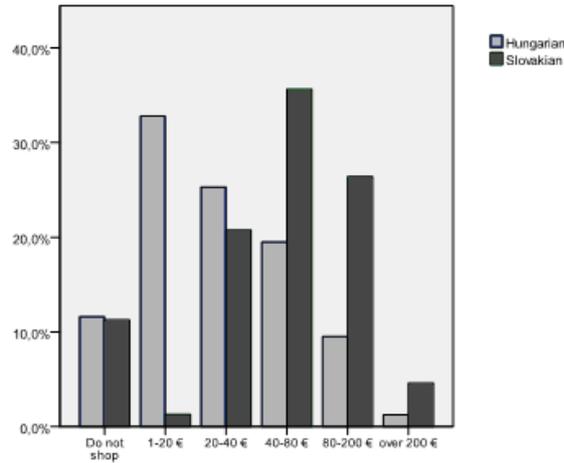
After describing the main results of the retail outlet-questionnaires in this part I will introduce my findings from the research of borderland's population. During the time of research the cross-rate of Hungarian forint reached its historical nadir to the common European currency (Slovakia introduced euro as official currency on 01. 01. 2009). The highest cross-rate values reached the 317 forint/euro level, while prior to the crisis this level stayed at 230 forint/euro, Hungarian forint weakened 36% in one year.

As Fig. 6 illustrates, the expenditures per shopping are in close connection with the actual cross-rate level, but this figure also proves that cross-border retail flows have got multidimensional influencing factors. Even by extreme weak forint level there were only 10% of the surveyed people who did not shop in Slovakia at all. The majority rarely, but did go to Slovakia and spent some money on different kind of goods and services. This result confirms that besides the prices, supply and quality level can play an important role in cross-border retail trade flows.

The researched border area is not a homogenous one, from the point-of-view of cross-border retailing. People living in "next to border" settlements do their shopping more frequently on the other side of the border than those who are settled in "close to border" towns and villages. Fig. 7.

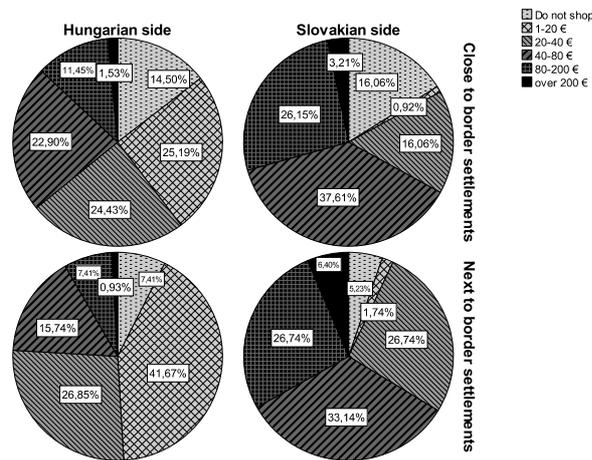
The geographical distance "forces" a minimum level of spending per shopping, so the advantages coming from price, supply, quality differences can counterbalance the additional costs of crossing the border (time cost of travelling, fuel cost, etc.). In this way people living very close to the border-crossings can make bigger profits from cross-border shopping than those who have got extra travel and time costs in the farther located border area settlements.

**Fig. 6: Cross-border spendings per shopping of people in the border area**



Source: Author, shopper survey

**Fig. 7: Geographical differences in spendings**



Source: Author, shopper survey

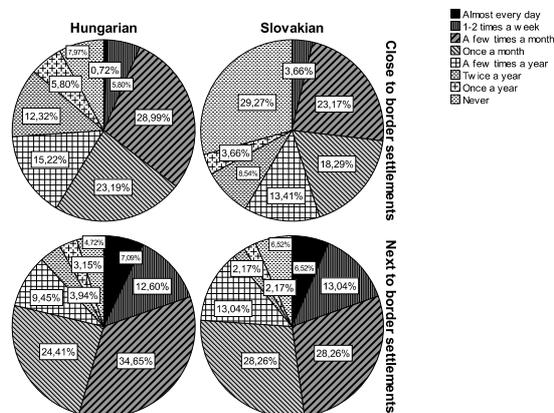
There is mixed (Slovakian and Hungarian) population in the northern (Slovakian) part of the research area. In my research I wanted to point out the potential differences between cross-border shoppers belonging to Slovakian and Hungarian nationality in Slovakia. While in “next to border” settlements there is no considerable difference between the cross-border shopping frequency of Slovaks and Hungarians, in case of “close to border” settlements (which are farther from the border than the previous ones) they differ from each other fairly. This special phenomenon can be explained as follows Fig. 8:

In the shopping frequency of people living next to border, the potential financial profit play the most important role, so there is no difference between the behaviour of the two nationalities.

The cross-border shopping habits of people living in “close to border” settlements are quite different. Because of the higher costs of travelling and time, they usually connect their shopping with other activities. That is why people belonging to Hungarian nationality come to shop to Hungary more regularly than the Slovaks: Hungarian people can join shopping

and other cultural (visiting cinemas, theatres, etc.) and private activities (VFR) while Slovaks have not got this opportunity in the lack of language skills or private relations. Thus Slovaks living in “close to border” settlements have a lower potential utility, so they visit Hungary’s border area shopping centres more rarely.

**Fig. 8: Shopping frequency, nationality and place of residence**

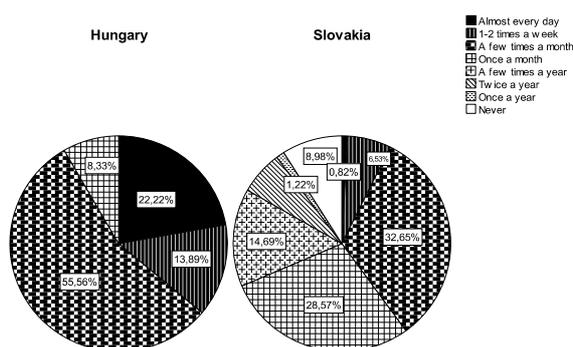


Source: Author, shopper survey

In order to express the complex character of cross-border retailing, I highlight another result where one can see considerable connection between cross-border shopping frequency and place of work. There are numerous Slovakian citizens (belonging to Hungarian minority) who have got a job in Hungary, in the main industrial centres of the border area. These people earn their wages mostly in Hungarian forint, so the best solution for them is to spend the major part of the money in Hungary.

Fig. 9 shows that people with a job in Hungary do their shopping much more regularly in Hungary than those who work in Slovakia.

**Fig. 9: Shopping and the place of work**



Source: own research, shopper survey

## Conclusions

In this study I wanted to publish some new findings in the field of border research. With my theoretical and empirical researches I aimed double purposes. In my typology about borderland areas I made an attempt to classify the different kinds of borderland-related

terms in a simple and transparent system. The model suggests that there may be a way to find a coherent terminology-system to the description of different socio-economic phenomena if researchers apply the related terms in a unified and consequent way.

My model on border economics is an attempt to integrate the most modern flow-theory of border research with a multidisciplinary approach in the field of cross-border socio-economic research. This model distinguishes three ranges of cross-border factor flows and places them into a complex environment, where political, geographical, economic, social and cultural agents play an important role simultaneously. The model implies a new way of approach in the research of cross-border economic flows: besides the economic factors, the extra-economic agents (geographical, lingual, social, mental, political) become more and more important.

Based on theoretical statements I conducted two empirical researches in the Slovakian-Hungarian border area. The most interesting findings of this research can be summarised as follows: the cross-border retail trade should have been considered as an important part of cross-border economic flows, and should have been researched more intensively. This phenomenon cannot be described by one factor only (permanently altering level of cross-rates), but it can be understood only by systematic theoretical and empirical research taking more influencing factors into account (supply-demand relations, competition level of different retail chains, qualities of products and services, infrastructural background, etc.).

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# SPECIFICS OF THE CZECH SPA INDUSTRY AND CATEGORIZATION MODEL OF SPA TOWNS

Ivana Kraftová, Ivana Mandysová, Zdeněk Matěja

**Abstract:** *This article provides selected information about the performance of the Czech medical spa industry, as well as the various types of stay available and their respective costs. It reveals the specific ways of how medical spa care is financed in the Czech Republic and resumes that financing methods diverge from using the public finance sources towards the private ones. In this article is developed a special model to enable easy categorization, which allows the reader to quickly ascertain fundamental information on relative attributes of spa industry. The created model is usable for marketing communication.*

**Keywords:** *Czech medical spas, Funding sources, Regional spa industry, Categorization model.*

**JEL Classification:** *L800, R110.*

## Introduction

Even though the history of the Czech medical spa industry can be traced back to ancient Greece and Rome, the Czech spa tradition is much younger, having started in the 15<sup>th</sup> century. During the centuries they have gained extraordinary fame in European cognizance. Nowadays, the Czech Republic with its numerous mineral springs and long tradition of medical spas, is considered as one of the most important European spa districts.

The Czech spa industry is traditionally regarded as part of the tertiary sector of the economy, operating midway between health care and tourism. Statistical classification of economic activities in the European Community NACE (From the French „Nomenclature générale des Activités économiques dans les Communautés Européennes“), which classifies businesses into separate sections and codes according to the added value, has medical spa activities classified under section Q86.9.0 - Other human health activities [10]. In the Czech Republic, medical spas are included, according to the structural branch of the economy, under the health-care sector.

Although the medical spa industry is not a separate economic sector, its contribution to the economy, employment, living standards and to the international image of the Czech Republic is quite extraordinary. Medical spas are based on the observation that health status is one of the most important indicators of the quality of life [12].

Medical spas are registered medical treatment facilities accredited by Ministry of The Health of Czech Republic which use local curative sources to provide balneotherapeutical services. It is necessary to fulfill certain requirements to receive the status of medical spa, as defined by the Private Facilities Medical Care Act, i.e. “Spa Act” [1].

Balneotherapy is an indispensable part of medical care and is reimbursed by Health Insurance Companies in the Czech Republic. The aim of balneotherapy is to finalize the medical care received in hospitals by providing a place for recuperation; in regards to chronic diseases, spa procedures are undertaken almost yearly to stabilize the condition of the client and prevent recurrence of his disease.

An aging population, stricter demands on health care, adopting healthier lifestyles, and increases in the standard of living of a population creates the presumption that there is a higher use of spa services. The spa industry should respond to the above by becoming responsible for its own development [8].

Trends have, to a small degree, manifested since the mid-90s and have intensified after 2000, showing a greater diversification of services now provided at medical spa facilities; from traditional bathing to rehabilitation, relaxation, and having additional wellness procedures on offer [9]. Innovations taking place in the Czech spa industry are influenced, to a large extent, by the type of innovative behaviour of spa treatment facilities [11], and they are also influenced by legislation and their links to public funding [7]. An important, local feature of Czech medical spas is that each has a special relation to and is influenced by the spa town in which the facility itself is located.

Medical spas are becoming an indispensable factor in the development of a region, with all the positive and negative effects seen in the dynamics of development and the life cycle model [3].

## **1 Material and methodology**

In regards to choosing the methodology, an exploratory style of investigation was undertaken due to a lack of any kind of previous research on the subject. The proposed model of categorization regarding medical spa facilities and spa towns is preceded by a concise explanation and background of the Czech spa industry as well as local spa-care principles. Performance indexes relating to the medical spa industry and information on how present-day medical spa-care is financed by the government have also been included.

Our model of categorization links each medical spa facility with its respective spa town and should provide researchers and those who work directly in the spa industry with a useful tool. The exploratory research sample consists of 156 medical spa facilities in 30 spa towns, each of which are certified as being Czech medical spas.

Our data comes mainly from Czechtourism – which is responsible for supporting and developing tourism in the Czech Republic, the Institute of Health Information and Statistics of the Czech Republic and the public database of the Czech Office of Statistics. A partial data source was the medical spa facilities and spa towns themselves.

The model evaluates the criteria identified, thus providing immediate and clear information on every spa facility. The scale of “small”, “small-mid-size”, “mid-size-larger”, and “large” has been used for denotation in the second and third criteria. Spa facilities have been sorted into two groups following above-average and below-average of these quantitative criteria levels. The average size figures were calculated on the explored sample of the medical spa facilities. This analysis allows a comprehensive insight into understanding the present-day Czech spa industry.

The synthesis of the spa towns and their medical spa facilities provides a model of categorization for each facility operating in the spa town. Firstly, we drew up the model for categorization, and then followed it by identifying the main trends of and their impacts on the Czech medical spa industry.

## **1.1 Methods of financing medical spa stays**

Spa care is regulated by law, mostly under the legislation entitled “Indicating list for medical care”. As well as grouping diseases and diagnoses, it also specifies types of medical care, lengths of stay, conditions, and lists exact places where medical spa care is provided.

Prices may be different in each spa, even for the same procedures, cures, etc. The exact amount to be covered by health insurance for each service provided is determined by agreements made between the Union of Spa towns and Health Insurance Companies. Prices have been divided into three parts: price for the therapeutic care (including the price for the natural local curative source used in providing the balneotherapy), price for accommodation, price for meals. In regards to how medical spa services are financed, medical spa care can be divided into the following categories.

“Complete coverage” (completely covered by health insurance companies) is the most frequent type of spa care provided. This stay is provided after operations and injuries, as well as in cases of diabetes or bronchial asthma and other chronic diseases. In such cases the health insurance company bears all costs of spa treatment, including the standard level of accommodation and meals.

“Partial coverage” (health insurance companies cover only a part of costs related to the medical procedures provided) is a kind of service in cases where the insurance company only pays for the medical spa treatment and the clients themselves bear the remaining expenses for their stays at the spas, such as accommodation and costs for meals.

“Self-payment” (self-paying clients themselves bear all costs) - spa treatments which are not covered by healthcare constitutes the third type. It includes paying clients – people who pay for their stays at spas themselves, paying for their own accommodation and meals, as well as any medical spa treatment procedures according to their own choice or to the recommendation of a spa doctor.

## **1.2 Spa care according to the kind of local curative source**

The Czech Republic is extremely rich in mineral springs and thus medical spas; the local use of natural healing springs and baths, in the form of spas which provide bathing and drinking water in the form of balneotherapy has been a long tradition for hundreds of years. These facilities make up an important region where they have been shaped by centuries of local cultural traditions. In recent years considerable innovative trends have appeared. Natural curative springs are, in the Czech Republic, defined by law [1] as being a naturally occurring mineral water, gas, or peloid which has a property suitable for therapeutic use.

Natural healing springs – local geological occurrences of mineral water are comprised entirely of deep tectonic zones of immense regional importance. Mineral springs are characterized by having different natural properties; such as a different composition, temperature, and effect of each mineral water. E.g. the hottest mineral spring in the Czech Republic is the thermal spring (called Vřídlo) in Karlovy Vary which is 73.4°C, which erupts up to 14 meters and yields 2 000 litres per minute. Nearby Mariánské Lázně, in contrast, has a cold mineral water spring with temperatures between 7-10°C. Mineral water from Luhačovice has a temperature of 10-12°C and is considered among the most effective in Europe due to a high mineral content.

Natural healing gas springs – medicinal gases are relatively rare in the Czech Republic. They are used for the preparation of natural gas baths or in injection applications.

Natural healing peloids springs – the second most important source of curative healing material in the Czech Republic is peloids. Sufficiently rich deposits of peat, fen, mud, and other matter that were created as the result of natural geological or biological processes, have constant and scientifically-proven health effects (based on both their current chemical and physical properties). Like natural healing water springs, they should be used for therapeutic purposes, either in their original condition or after being modified (which increases their healing effects). In the case of therapeutic care, they are used in hot baths and wraps after they are pulped and mixed with water [5].

Climate as a medicinal source – climate is another important factor in balneological care in the Czech Republic. There are a number of favourable local climatic spots possessing charming surroundings, such as the Priessnitz Spa Resort near Jeseník for instance. Climatic spots are such places that have favourable climatic conditions, in particular in terms of altitude and location, cleanliness, temperature, humidity and air circulation, length and intensity of sunshine, vegetation (forests, parks, meadows) and excellent hygienic conditions.

## 2 Findings

### 2.1 Categorizing Czech spa towns and medical spa facilities

Curative procedures which use natural healing springs form the basis of all activities of Czech medical spa facilities. When evaluating the state of and trends within the Czech spa industry, it is important to take into consideration the development of each particular spa facility or spa town, including the impact they have on each other.

We have come up with a method of categorizing medical spa facilities and spa towns for the purposes of marketing and operating not only the medical spa facility itself, but also providing direction to the spa town where these medical spas operate.

It is possible to distinguish four basic kinds of sources of curative treatment: Mineral waters, gases, peloids, and climate. In certain cases the sources of curative treatment have been combined. Tab. 1 shows the level of occurrence of each individual source of curative treatment, the most frequent of which are mineral waters (145), whereas climate (18) represents only a tiny fragment of the total number.

**Tab. 1: Medical treatment springs segmentation**

Medical treatment springs	Symbol	Total number of spa facilities
Mineral water	w	145
Peloids/peat	p	72
Gases	g	30
Climate	c	18

*Source: own, based on [4].*

Parameters regarding size, which are important both in regards to the health facility and its clients, as well as from the perspective of the spa town and the development of its infrastructure, contain two further criteria – the size of the spa town measured by the number of inhabitants [6], comprised of four criteria (Tab. 2); the bed capacity of the medical spa facility – the data concerning the classification of these has been classified into four groups (Tab. 2).

**Tab. 2: Classification scale used**

Value	Small	Small- mid-size	Mid- size- larger	Large	
Symbol used	1	2	3	4	
Spa town size	Up to 1000	1 001- 3 000	3 001-15 000	Above 15 000	Number of inhabitants
Bed capacity of medical spa facility	Up to 500	501- 1500	1501- 2500	Above 2500	Number of beds /Bed capacity
Variety of Czech traditional procedures and balneotherapy	Up to 25 %	26 % - 50 %	51 % - 75 %	76 % - 100 %	max % out of total number
Variety of non-medical /pampering procedures	Up to 25 %	26 % - 50 %	51 % - 75 %	76 % - 100 %	max % out of total number

*Source: own.*

The last two criteria evaluate the variety of procedures and services provided to clients at medical spa facilities. The procedures provided at Czech medical spa facilities have been divided up as follows [4].

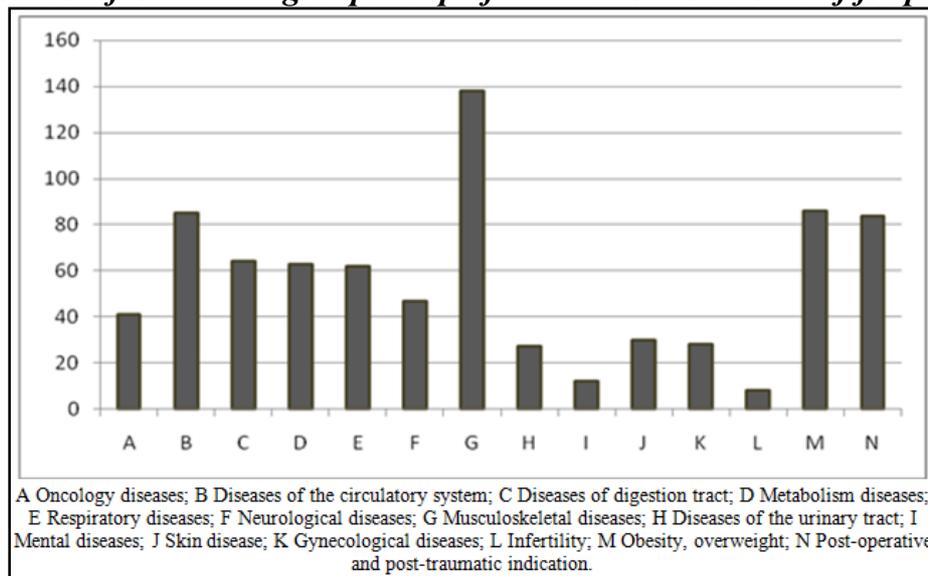
Traditional Czech medical procedures and balneotherapy, e.g. aero-therapy, natural carbonic bath, gas injections, peat wrap and balneotherapy, now comprising of e.g. diathermy, electrophoresis, cryo-therapy, lymphatic drain, magneto-therapy, etc.

Non-medical services and namely “pampering” procedures, e.g. acupressure, acupuncture, yoga, shiatsu as well as aqua gymnastics, aromatic massage, cellulite treatment, peeling, sauna, solarium, whirlpool.

The classification scale used has been divided up into size of spa town (expressed in number of inhabitants) and bed capacity of medical spa facility (expressed in number of beds) and range of procedures on offer, shown in percent. In the case of individual spa facilities, the table shows the specific number for just the facility itself; in the case of a spa town, the numbers from all facilities located in the town are presented (Tab. 2).

The range of procedures is connected to indications which have been divided into 14 groups [4] and designated with the letters A to N. In addition, the statistical reporting [2], [13] divides the indications into 11 groups designated with roman numerals, i.e. from I to XI for indications of adult clients; from XXI to XXXI for indications of teenagers and children. An overview of indication groups, as well as the rate of their representation in Czech spa town, is given in Fig. 1. It shows that indications from the group of musculoskeletal diseases are represented most frequently. Circulatory system diseases – the second in the overall order – is next, followed by treatments in the field of “obesity and overweight” and “post-operative and post-traumatic states”.

**Fig. 1: Indication of individual groups at spa facilities and their rate of frequency**



Source: [4].

## 2.2 Categorization model

The model below uses the criteria; and is thus followed by the application where the criteria have been applied (Tab. 3).

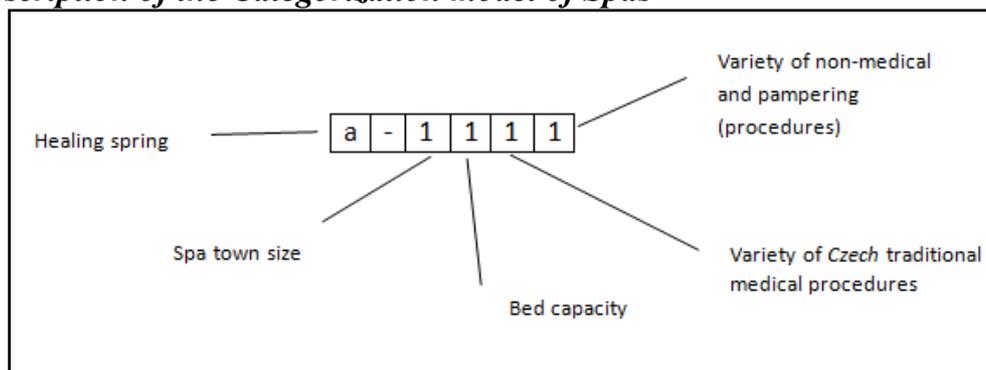
**Tab. 3: Classification of the spa towns according to the proposed classification**

Medical spa facility	Category	R1	R2	Medical spa facility	Category	R1	R2
Lázně Toušeň	p-2121	37	6.99	Lipová-Lázně	c-2122	101	11.04
Poděbrady	w-3222	92	7.42	Velké Losiny	w-2111	52	11.17
Třeboň	p-3223	122	12.24	Jeseník	wc-3233	121	7.58
Bechyně	p-3321	45	37.50	Teplice nad Bečvou	w-1123	114	88.45
Konstantinovy Lázně	w-1121	25	43.14	Luhačovice	w-3332	86	34.91
Teplice	w-4222	81	1.95	Ostrožská Nová Ves	w-3122	117	4.52
Mšené-Lázně	p-2122	105	12.18	Kostelec u Zlína	w-4122	63	0.23
Lázně Kunderatice	p-2122	36	15.09	Karlova Studánka	w-1121	64	213.36
Lázně Libverda	w-1222	97	237.12	Karviná-Darkov	w-4233	105	1.80
Jánské Lázně	w-1222	78	93.51	Klimkovice	w-3122	72	12.09
Lázně Bělohrad	p-3133	91	9.21	Karlovy Vary	wp-4443	91	12.00
Velichovky	c-1122	95	55.66	Mariánské Lázně	wg-3334	145	16.26
Lázně Bohdaneč	wp-3132	99	6.15	Františkovy Lázně	wgp-3432	48	52.52
Hodonín	wg-4121	70	1.24	Jáchymov	w-3223	111	33.03
Bludov	w-3122	74	5.42	Lázně Kynžvart	wc-1111	48	23.17

Source: own, based on [4], [6].

A subject is assigned a pre-defined value according to a set of characteristics, as shown in Fig. 2. The numbers are easy to interpret: the higher the number, the higher the parameter value.

**Fig. 2: Description of the Categorization model of Spas**



Source: own.

In the following text, the classification of medical spas has been simplified to give a comparison of the whole evaluated sample with the average values in the Czech Republic.

**Tab. 4: Number of inhabitants of spa facilities**

<i>average = 12 108 inhabitants</i>	Number of spa facilities	%
Below-average number of inhabitants	70	45
Above-average number of inhabitants	86	55

Source: own, based on [4], [6], [13].

Spa facilities are distributed unevenly in the Czech Republic, most of them operating in towns where the numbers of inhabitants are above the average, e.g. Karlovy Vary and Mariánské Lázně in the Karlovy Vary region, and the towns of Poděbrady (the Central Bohemian Region) and Jeseník (in the Olomouc Region) are also important in regards to the number of facilities. At the same time, only 9 spa towns out of the whole evaluated sample of 30 spa town have their number of inhabitants above the average values of mentioned sample, and the remaining 21 resorts have been found to have their number of inhabitants below the average.

**Tab. 5: The bed capacity**

<i>average = 185 beds</i>	Number of spa facilities	%
Below-average capacity	85	55
Above-average capacity	56	35
Not specified	15	10

Source: own, based on [4].

The interval between the minimum and maximum bed capacities is relatively high, the minimum bed capacity is 12, and the maximum is 641. Fifteen facilities do not mention any bed capacity, which may be caused by the fact that accommodation there is separated from the facility in which procedures are carried out. The number of facilities in spa town is shown in Tab. 5 in a more detailed scale so that the importance of these sorting criteria is stressed; it indicates that most of the facilities have available bed capacity varying between 51 and 250 beds.

**Tab. 6: Traditional Czech procedures and balneotherapy**

<i>average = 38 items</i>	Number of spa town	%
Below-average offer	74	47
Above-average offer	82	53

Source: own, based on [4].

**Tab. 7: The variety of non-medical and pampering (procedures)**

<i>average = 30 items</i>	Number of the spa town	%
Below-average offer	81	52
Above-average offer	75	48

*Source: own, based on [4].*

The results of the analysis (Tab. 6, Tab 7.) shows that there are above-average offers regarding traditional Czech procedures in the total number of (67) procedures, and, at the same time, the below-average offers of non-medical services and namely “pampering” procedures including 32 items are slightly predominating in Czech medical spas. If individual spa towns are evaluated absolutely in regards to the variety of traditional Czech procedures, 65 % of facilities appear to be in the “small-mid-size” classification class, 18 % are in the “small” class, 12 % are in the “mid-size-larger” class and only 5 % are in the “large” class. This is given by the curative orientation of individual medical spas and this level of variety may be considered to be adequate to resources and needs. The second evaluated level of variety concerning offers of non-medical services and namely “pampering” procedures is already more closely connected with the innovations of products especially for self-paying customers, and therefore the predominance of both middle classification classes (33 % - “small-mid-size”, 18 % - “mid-size-larger”) may be evaluated positively. On the other hand, the predominating “small” class on the 49 % level indicates the fact that a number of medical spas do not pay sufficient attention to the products and services they have on offer.

From this it can be ascertained that Czech spa facilities are, as for size criteria and variety of balneotherapy procedures, equally represented on both below-average and above-average levels. In terms of size it is certainly convenient - the client can choose according to their preferences; in terms of diversity, it can be expected that current economic pressures - especially the changing conditions regarding how Czech spas are being financed – will likely expand and diversify the range of procedures on offer, and raise the bar on how innovated they will be.

### **3 Discussion**

#### **3.1 Current trends in the spa industry**

It has been possible to make note of trends after 2000 in the Czech spa industry concerning the number of clients and their composition as well as offers from spa care providers during the last few years. It is most apparent in particular that:

- The number of clients using the completely- or partially- covered spa care has been on the decrease;
- the number of self-paying clients has been growing;
- the number of clients from abroad has been growing;
- not only natural persons but also legal entities act as self-paying clients, such as company-organized employee recovery programmes are also becoming popular;
- with respect to the prolonged life expectancy, it is seniors that have become one of the key groups of spa guests; a specific group consists of foreign pensioners who have – in addition to free time – also sufficient financial resources;

- an important segment of clients include managers requiring anti-stress leaves that include relaxation procedures among other things;
- more attention is paid to marketing;
- services are focused on clients' wishes;
- average period of stay is becoming shorter (it must be at least 21 days in the case of stays paid by health insurance companies);
- the offer of stays for recuperation, especially relaxation, rehabilitation and wellness stays, are on the rise; medical spas are responding to the emphasis people are placing on their health and how they actively spend their free time;
- clients can choose from specialized stays or take advantage of various "package deals", e.g. programmes for different age groups, managerial programmes, anti-stress programmes, programmes for couples, anti-age programmes, weight-loss programmes, and detoxication programmes;
- new modern forms of treatment and procedures are becoming part of domestic spa offers, e.g. exotic Thai massages, "Ayurveda", cryo-therapy (curing with cold temperatures), healthy walking (as in Nordic walking), "high tech" equipment as in introducing Wi-Fi zones, and special curative procedures such as "biofeedback" technology and luminous therapy;
- combination of spa care with gastronomic experience, which reflects the ever-increasing interest in gastro-tourism, which is also a new trend;
- the offer is extended with sports activities – golf, cycling, walking, fitness, tennis;
- accompanying programmes for spa clients which take advantage of the cultural and historical wealth of Czech towns.

### **3.2 Description of Czech spa towns according to the categorization proposed**

Thirty municipalities are included in the sample of spa towns, regardless of having membership in the Association of Spa towns. Classification of individual spa towns in accordance with the categorizing proposed has been recorded in Tab. 3, i.e. the relevant letter indicates the curative spring (with mineral waters unambiguously prevailing), figures following the hyphen indicate the sorting classes of the health resort size, bed capacities, variety of traditional Czech procedures and variety of non-medical services and namely "pampering" procedures (Tab. 2).

If the average values of the classifications of individual numerically indicated parameters are calculated, then:

- The average spa town size has the value of 2.53, meaning spa facilities operate in medium-sized spa towns;
- bed capacity of medical spa facilities in spa towns reaches the value of 1.67, which shows that they are below the "small-mid-size" category;
- average levels of procedures variety in spa towns correspond to the results achieved in regards to individual spa facilities – in both cases the average value is higher than 2; in the case of traditional Czech procedures there is the more favourable value of (2.23)

in comparison to cases of non-medical services and namely “pampering” services (2.03).

Within the sorting of spa towns, attention was also paid to two relations (R1, R2) – also shown in Table 3. The first relation (R1) describes the relationship between the level of non-medical services and namely “pampering” services and the level of traditional Czech procedures. The higher value indicates a larger range of marketing-oriented products offered by the spa facilities operating in the spa town in question. The “complementary” offer predominates in the case of nearly one third of spa towns (9 of 30); at the same time the relation value above 0.9 is achieved actually by one half of the spa towns considered. This may be referred to as evidence of flexibility and adaptability of Czech medical spas while their product offers are being created. (It should be emphasized, however, that it is in fact the offer, and not the actual performance of the offered procedures and services, that is evaluated.)

The second relation (R2) concerns the ratio between the bed capacity in the spa facilities and the number of inhabitants of the spa town. It is supposed that the higher the value, the higher the pressure to deal with the infrastructure in regards to clients in the medical spa.

It is essential for spa towns to know that health resort clients form an important group of their inhabitants, albeit temporary ones, thus local infrastructure should be adapted to their needs. Interaction between the municipality and the management at medical spa facilities should be much more intensive; this is especially true for spa towns where the share of potential spa clients in the total population exceeds one third, which is the case of ten of the spa towns out of thirty.

## **Conclusion**

The Czech medical spa industry is determined by the economic development in the regions as well as in the individual spa town. Traditional curative spa treatment with a strong medical background, as well as wellness and tourism, are changing along with the environment, e.g. political, economic, legal, etc.

As self-paying customers relatively stay only for a short period of time on average, their dynamically growing numbers do not compensate for the missing earnings from the insured clients. The volatility of the exchange rate between the Czech crown and foreign currencies, particularly the euro, is another important factor which can be used to evaluate the development of profitability in the case of facilities with a high share of foreign clients. With reference to the growing impacts of the financial crisis, further negative tendencies regarding profitability in Czech spas can be expected. This includes, above all, a decrease in earnings due to the drop in self-paying Czech as well as foreign clients.

Experts are of the opinion that current average period of stays in spa towns varying between 10 to 15 days is economically interesting and meaningful from the point of view of health care, especially in combination with the other therapeutic methods available. Shorter periods of stays and increasing numbers of relaxation stays continue to induce a growing number of visitors who pay for spa care in full all by themselves. This group of self-paying customers is based on customer referral, has great bargaining power, and constantly applies pressure on to the spas in regards to raising the quality and scope of services on offer as well as any accompanying programmes.

Similarly, like in overseas and West-European countries, the group of self-paying customers perceives spas rather as a luxury product, with the emphasis placed on wellness

and beauty. In this group, there is a high share of people who utilize services on a regular, e.g. yearly basis, which creates a group of 'permanent' visitors to a spa. At the same time, clients who prefer only wellness programmes can choose from a large range of service suppliers even out of the spa sphere. A group of foreign visitors, who give preference to Czech spas above others mostly in regards to the historical places and architecture on offer, as well as the possibility to relax, naturally differentiates in this group of clients as well.

It is therefore clear that an entirely new approach in looking at their own services, while clearly orientating themselves to their clients' demands, has occurred in the Czech spa industry due to changing market conditions. The social and economic development of the Czech Republic brought about considerable changes in management at Czech spa facilities after the Velvet Revolution in 1989; their legislation, ownership structures, methods of financing as well as product portfolios changed. Nevertheless it can be said that these are decisive factors that form the face of the spa - they determine the social and economic development of the micro-region; their impact exceeds the borders of the micro-region in areas with a high concentration of spa facilities and impacts on the whole region can be traced. In the future, the necessary cooperation between individual stakeholders carried out on the basis of knowledge sharing, a part of which includes results of performed analysis of medical spas seems to be the basic starting point for management on encouraging growth in the Czech spa industry and the development of spas and their regions.

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# CLOUD SOLUTIONS FOR GIS AND CLOUD-BASED TESTING OF WEB-BASED GIS APPLICATIONS

**Martin Lněnička, Jitka Komárková**

**Abstract:** *This paper is focused on the role of cloud computing technologies in the presentation and availability of the spatial data via internet and cloud-based testing of web-based GIS applications. The article has two main aims. The first one is the survey of published results attained by the synergy of two research fields – web-based GIS applications and cloud computing in the context of usability. The second one is the performance evaluation of selected web-based GIS applications in the Czech Republic, which will be mostly focused on the response time of the application.*

**Keywords:** *Cloud computing, GIS, Web-based GIS, Cloud-based testing, Usability.*

**JEL Classification:** *L86, M15, O30.*

## Introduction

A Geographic Information System (GIS) is a collection of computer hardware, software, methods, people and geographic data used for capturing, storing, updating, manipulating, analysing, and displaying all forms of geographically referenced information. The term describes any information system that integrates stores, edits, analyses, shares, and displays geographic information for informing decision making. As the new platform for real-time data, GIS utilizes high-resolution satellite imagery, light intensity detection and ranging, GPS data, computer-aided design files, and enterprise database management systems for complex analysis. Users can also cross-reference these geographic data sources in a GIS and create impressive geographic displays catered to an area of interest and to individual or specific applications. All these new approaches need more computing resources to meet users' requirements. [7]

Web-based GIS applications are online services over the internet that provide maps and various spatial analysis and spatial processing to the users and help them to search and browse spatial data like locating different places and routes. A web-based GIS application is an application that is accessible through a browser. It makes it possible for the users to access GIS with its basic functionalities like searching locations, getting directions, zooming and panning and printing maps via web browsers. In other words, web-based GIS means that spatial data can be published, searched, analysed and displayed over the internet. [17]

Cloud computing can be viewed as a collection of services, which can be presented as a layered cloud computing architecture. The services offered through cloud usually include services referred as to Software-as-a-Service (SaaS), which enable users to run applications remotely from the cloud. Infrastructure-as-a-service (IaaS) then refers to computing resources as a service. This includes virtualized computers with guaranteed processing power and reserved bandwidth for storage and internet access. Platform-as-a-Service (PaaS) is similar to IaaS, but also includes operating systems and required services. PaaS is IaaS with a custom software stack for the given application. [6]

Functions and services of web-based GIS applications that operate on spatial data are geographically and logically distributed due to the source of data, location of computing facilities and organizations. The spatial analysis on large amount of data is complex and computationally intensive. In order to share and work with these data as well as the computation results among geographically dispersed users, a scalable and low cost cloud computing platform is a good solution for not only web-based, but also all GIS applications. Cloud solutions also enable many users from different parts of the world to interact together, exchanging and collaborating with data etc. Cloud-based testing helps to better understanding of the behaviour of web-based GIS applications, especially to identify performance characteristics, e.g. peak demands through the day, response times or other load issues of the application. The concept of this research paper is focused on the resources and the performance of IaaS layer for GIS.

## **1 Problem formulation**

The recent developments of GIS applications have ranged from the standalone desktop to distributed enterprise GIS architectures and further towards large scale cloud architectures. Two main trends can be now identified in the area of using cloud computing technologies for GIS. The first one is focused on the cloud infrastructure and delivering of highly available and flexible services for enterprise GIS applications – e.g. ArcGIS for server cloud solutions offered by Esri, more details in [12]. The second one deals with web-based GIS applications, which can utilise any of a number of current technologies and database or storage platforms. However, the choice of which can impact on the performance of these applications. Both these problems need to be described, especially advantages and disadvantages of these approaches. As the methods the analysis and the comparison was used.

Solving of the first problem is presented by a review of literature, limited mainly to academic articles and recent books. This area will be mostly dedicated to spatial cloud computing, managing spatial data and the role of usability. The second part extends the results of previous studies of usability evaluation of web-based GIS – e.g. in [11]. Improvements in usability through improved user interfaces also account for the increased popularity of visualisation techniques and GIS in general. More popularity means more users and more users mean increasing demands on the performance of the web-based GIS application. An important consideration in software selection is speed of response as users may expect the result of GIS analysis to be produced in real time. Cloud-based testing can help to discover bottlenecks in the application performance, so the second part is focused on techniques and tools of cloud-based testing and the comparison of selected web-based GIS in the Czech Republic.

## **2 Cloud computing infrastructures and spatial cloud computing**

With the growing popularity of the cloud computing paradigm, many applications are moving to the cloud. The elastic nature of resources and the pay as you go model have broken the infrastructure barrier for new applications which can be easily tested out without the need for huge upfront investments. The sporadic load and performance characteristics of these applications, coupled with increasing demand for data storage and varying degrees of consistency requirements pose new challenges for data testing and management in the cloud. Virtualization, automation and standards are the pillars of the foundation of all good cloud computing infrastructures. [2], [6]

Cloud computing provides opportunities and advantages for GIS to become more cost-effective, productive, and flexible in order to rapidly deliver new capabilities with lower total cost of ownership, increased availability, faster application delivery etc. [12]. Cloud providers also deliver large space for storing spatial data, virtual machines are hosted in cloud hardware that are constantly upgraded by the service provider as well as software, it offers dynamic configuration global access (collaboration between GIS researchers) etc. [16]. The main research problems and studies solved in recent years are: performance measurement, evaluating the suitability of cloud provider for hosting GIS services, comparison of services, low cost solutions for the deployment in the public sector, open source solutions based on Apache Hadoop, etc.

Spatial Cloud Computing (SC2) adds geography to the cloud computing paradigm and also provides dynamically scalable geo-information technology, spatial data, and geo-applications as a web service. It can be represented with a framework including physical computing cloud infrastructure, computing resources distributed at multiple locations, and a spatial cloud computing virtual server that manages the resources to support cloud services for end users. Because the geo-technology infrastructure, the services and the data are provided, there is no large initial investment in time and cost, or ongoing maintenance. By providing the GIS functionality and data as a web service, SC2 eliminates the need for in-house GIS capability. And for organizations with in-house GIS, SC2 frees them up from responding to basic mapping requests, and lets them deal with more complex and specialized tasks and services such as cartography, spatial data maintenance, and spatial analysis. [14], [20]

### **3 Web-based GIS applications**

GIS web applications are defined as web-based applications having characteristics of desktop GIS applications and are delivered by way of a standard web browser [1]. Web-based GIS applications can be as simple as presenting a simple map of the world to front-ending complex spatial analyses of spatial distributions and processes. These types of applications are focused on end users, mostly on casually working people who may have only a very limited knowledge of GIS. [1], [11]

Architecture of web-based GIS applications is usually based on the n-tier client / server architecture. Two-tier architectures retain the user interface and functional part of the web application on the first tier and deploy the database and data storage functions on the second tier. However, a more efficient architecture is a 3-tier architecture in which the user interface and functional parts are separated on different tiers. This architecture significantly supports scalability, maintainability, central data management and protection. The following layers should be recognized: presentation layer (user interface), web server (communication between browser and application), application layer (application logic) and data layer (data storage and access). [1], [11]

#### **3.1 Role of usability for web-based GIS applications**

Usability is important factor concerning the web and if any web-based application has problems like file downloading takes time, no clear navigations and not oriented towards the needs of the users, then users get frustrated and they will probably not use this application in future. Usability aspects give benefits to the users accessing this services which contain easy to use and attractive exploring functions. The interface of the application then must be so simple that users who may have only a very limited knowledge of GIS can easily use

it and fulfill their requirements with it. The users are satisfied when they can achieve their goals in a successful and efficient way. [10]

For a web-based GIS application that attracts thousands of visitors each week, usability is an important ingredient to success. The performance of the web-based GIS application is one of the main parts connected with usability. User will probably visit an application less often if it is slower than a close competitor. The main indicator for the user is mostly load time (response time) of the application, which is the total time it takes from when a user makes a request until user receive a response. Research has shown that the optimal load time is between 2 and 4 seconds – e.g. in [18].

### **3.2 Web-based GIS applications and their performance**

Also increase of web technologies and new models has leads to an improvement of the geographical information utilization and availability. The important factor for the application users is the flexibility it provided them for accessing the GIS application service. While this improvement provides new opportunities for public domain as well as commercial use of spatial data, new problems arise. One of them is the performance problem of transferring data efficiently from server to client, as these datasets need to migrate, as fast as possible, from server to client tiers. Spatial data are generally very large, though it depends on the situation and the way of delivering, and this process may demand too much time. [9]

The database is an important part of web applications. In the case of web-based GIS applications, it becomes more important because of the storage requirements of geographically referenced data, which can be especially in the cloud computing environment stored and accessed from different servers. It can sometimes cause long answering times for GIS applications while the necessary data is being compiled and returned to the user interface. Thus the performance of a database has a direct impact upon the performance of the web application which needs to be tested. Database performance indicates the response time of the database management system for retrieving / storing records, it also represents how efficiently database handles multiple read / write requests to different database tables. When relying on an internet service, there is always a question of availability and the peak load capacity that the provider can carry. The limitation of web-based GIS applications is also the problem of bandwidth. If the internet speed is slow then response time will be high. [1], [14]

## **4 Cloud-based testing and its techniques**

Cloud-based testing refers to testing and measurement activities on a cloud based environment and infrastructure by leveraging cloud technologies and solutions. It is a form of software testing in which web applications and services use cloud computing technologies to simulate testing environment with real world user traffic as a means of load testing and stress testing web sites. The ability and costs to simulate web traffic for software testing purposes has been an inhibitor to overall web reliability. [3]

Cloud-based software testing (cloud testing) basically uses the concept of cloud and SaaS or PaaS. It provides the ability to test by leveraging the cloud. These systems are designed based on cloud platform and service oriented concepts for continuous testing without procuring licenses for programs and testing tools and installing them. Service providers give testers environment with tools, which offer access to scalable and virtual labs with a library of operating systems, test management and execution tools, middleware

and storage necessary for creating a test environment that closely mirrors the real environment. Users can save the cost of complicated maintenance and upgrade effort and providers can upgrade their services without impact on the end-users. [21]

There are also three types of cloud test environments [8]: a cloud-based enterprise test environment, in which application vendors deploy web-based applications in a cloud to validate their quality; a private / public cloud test environment, in which vendors deploy SaaS applications SaaS in a private (or public) cloud to validate their quality; a hybrid cloud test environment, in which vendors deploy cloud-based applications on a hybrid cloud infrastructure to check their quality. Most cloud testing today is being performed via automated services, but there are software packages that offer a variety of options in pricing, performance, and feature set. More details can be found in [3], [8], [13], [15] or [21].

The different types of testing of web applications are performed [3], [8], [15]:

- Stress testing is defined as the process of determining the stability or capabilities of the application under extreme conditions,
- performance testing done to measure the application's ability such as speed to value, flexibility, cost, more mobility, scalability, easy implementation to support various applications,
- compatibility testing is one which is used to cloud environment under different operating systems, the main advantage is to verify whether the cloud environment is able to support all operating systems,
- cross browser testing – different web browsers are used to run tested applications to check the compatibility of these web browsers,
- load testing (load simulation) is performed to identify the application's behaviour under normal and extreme conditions in conducting more efficient and more realistic large-scale tests.
- latency testing is used to measure the difference between action and response time of an application.

The cloud testing tools can be distinguished in three categories [13]:

- Browser based tools (accessible through a web browser), which are free available without registration – e.g. Cloud Assault or Load Impact,
- browser based tools available after registration, which usually allows the user to try out all the essential functions of this testing tool for one week to one month – The JMeter Cloud, Test Perspective 3.0, PractiTest or LoadStorm,
- tools, that have to be installed on the client side, registration is required – e.g. SilkPerformer CloudBurst, HP LoadRunner, NeoLoad Cloud Testing or TestMaker.

## **5 Cloud-based testing of selected web-based GIS applications**

This case study is focused on the cloud-based testing of selected web-based GIS applications in the Czech Republic. More precisely, all 14 applications of the Czech regional authorities were selected for testing because they are focused on the same type of users, have same features like navigation and get directions, but with different legends, colours and design. They are run by the same type of public administration authority

– on the each level of NUTS 3. These applications were tested together with Mapy.cz and aMapy.cz, which are an example of commercial web-based GIS focusing on the same type of end-users. The list of them is shown in the Tab. 1.

**Tab. 1: List of the selected web-based GIS applications in the Czech Republic**

No.	Name of provider of web-based GIS	URL of the tested web-based GIS application (available in the first half of 2013)
1.	Central Bohemia Region	<a href="http://mapy.kr-stredocesky.cz/dmu25_ortofoto.htm">http://mapy.kr-stredocesky.cz/dmu25_ortofoto.htm</a>
2.	Hradec Králové Region	<a href="http://mapy.kr-kralovehradecky.cz/gis/isapi.dll?MU=INTERNET&amp;LANG=CS-CZ&amp;MAP=spravni_cleneni">http://mapy.kr-kralovehradecky.cz/gis/isapi.dll?MU=INTERNET&amp;LANG=CS-CZ&amp;MAP=spravni_cleneni</a>
3.	Karlovy Vary Region	<a href="http://arcgis.kr-karlovarsky.cz/Spravni_hranice/">http://arcgis.kr-karlovarsky.cz/Spravni_hranice/</a>
4.	Liberec Region	<a href="http://twist.kraj-lbc.cz/tms/geografie/index.php">http://twist.kraj-lbc.cz/tms/geografie/index.php</a>
5.	Moravia-Silesia Region	<a href="http://mapy.kr-moravskoslezsky.cz/tms/admin_clen/index.php">http://mapy.kr-moravskoslezsky.cz/tms/admin_clen/index.php</a>
6.	Olomouc Region	<a href="http://mapy.kr-olomoucky.cz/">http://mapy.kr-olomoucky.cz/</a>
7.	Pardubice Region	<a href="http://195.113.178.19/html/bez_km.dll?gen=map&amp;map=spravni">http://195.113.178.19/html/bez_km.dll?gen=map&amp;map=spravni</a>
8.	Plzeň Region	<a href="http://mapy.kr-plzensky.cz/arcims/cleneni/viewer.htm">http://mapy.kr-plzensky.cz/arcims/cleneni/viewer.htm</a>
9.	Region of the Capital City of Prague	<a href="http://mpp.praha.eu/DMP/default.aspx">http://mpp.praha.eu/DMP/default.aspx</a>
10.	South Bohemia Region	<a href="http://gis.kraj-jihocesky.cz/mapy/obce/mapa.jsp">http://gis.kraj-jihocesky.cz/mapy/obce/mapa.jsp</a>
11.	South Moravia Region	<a href="http://up.kr-jihomoravsky.cz/ITC/">http://up.kr-jihomoravsky.cz/ITC/</a>
12.	Ústí nad Labem Region	<a href="http://gis.kr-ustecky.cz/administrace/">http://gis.kr-ustecky.cz/administrace/</a>
13.	Vysočina Region	<a href="http://geoportal.kr-vysocina.cz/web/Map">http://geoportal.kr-vysocina.cz/web/Map</a>
14.	Zlín Region	<a href="http://vms4.kr-zlinsky.cz/kmp/">http://vms4.kr-zlinsky.cz/kmp/</a>
15.	Seznam.cz	<a href="http://mapy.cz/">http://mapy.cz/</a>
16.	Centrum.cz	<a href="http://amapy.centrum.cz/">http://amapy.centrum.cz/</a>

Source: Authors

The following aims were stated for the planned testing:

- The main aim is to measure load (response) times of selected applications and identify the performance problems of tested applications, which could affect the response time and also usability for end-users.
- The second goal is to identify the approximate peak load of each application during the working day.
- The last goal is to compare applications from the public and private sector.

Based on [13] the best cloud-based testing tool for web-based GIS applications, which is for free or trial, is Load Impact, which offers client-side load testing. This tool offers more real time measurements and characteristics, even interactive charts, but these are not suitable for web-based GIS applications.

The selected web-based GIS were tested simultaneously at 9.00, 12.00, 15.00 and 18.00 (during the working day), because of different web traffic during the day. Every test used 50 virtual users, which were accessing the application concurrently for 5 minutes. These performance characteristics (metrics) were selected for measurement: average user load time in seconds (for all 50 virtual users concurrently), data received (total number of bytes received during test) in MB, and total number of received requests. Results of all selected metrics are shown in Tab. 2.

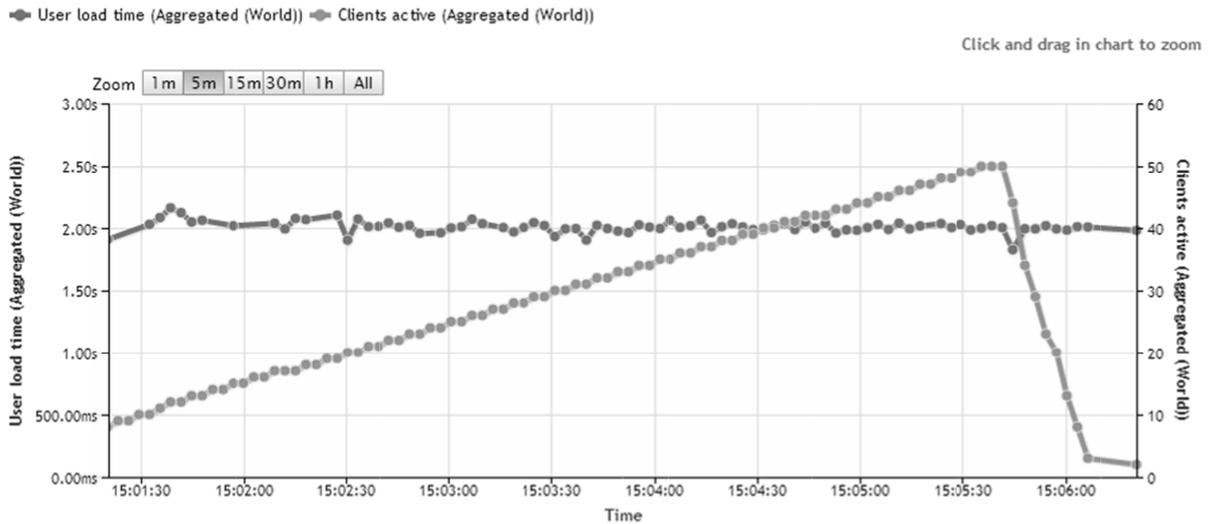
**Tab. 2: Results of cloud-based testing of the selected web-based GIS applications**

No. / time	9.00			12.00		
	user load time [s]	data received [MB]	requests	user load time [s]	data received [MB]	requests
1.	1,45	1,60	1615	2,13	1,72	1740
2.	2,51	66,23	1008	2,85	88,32	1341
3.	32,37	57,77	4748	34,58	57,47	3840
4.	37,82	25,87	6298	38,16	19,71	4629
5.	11,45	36,63	7180	12,40	41,04	8054
6.	2,48	20,66	1023	2,56	21,92	1084
7.	2,97	83,81	1274	5,65	79,86	1217
8.	2,31	4,98	556	2,56	4,98	556
9.	67,42	89,43	7481	72,15	68,27	5460
10.	9,86	10,05	2952	10,05	9,38	2744
11.	51,40	256,76	5722	83,72	178,39	3714
12.	6,28	165,67	1112	6,42	144,22	968
13.	7,82	167,58	5571	7,57	138,04	4567
14.	8,80	390,07	897	9,11	379,69	879
15.	1,46	86,27	1217	2,02	115,66	1643
16.	11,25	40,90	649	14,89	38,21	604
No. / time	15.00			18.00		
	user load time [s]	data received [MB]	requests	user load time [s]	data received [MB]	requests
1.	2,37	1,63	1643	1,95	1,68	1704
2.	5,36	81,41	1240	4,71	77,78	1184
3.	71,56	56,82	3641	81,75	60,26	4750
4.	32,48	20,57	5013	27,74	21,63	5266
5.	19,98	35,41	6953	4,74	51,68	10175
6.	2,44	21,79	1079	2,25	21,56	1068
7.	2,07	73,14	1073	2,78	87,11	1323
8.	1,96	5,00	558	1,82	5,14	574
9.	78,51	83,17	6466	91,32	73,65	6679
10.	15,65	8,68	2538	9,54	9,63	2826
11.	85,57	185,22	3211	98,67	187,71	4001
12.	4,30	150,85	1019	2,79	168,06	1128
13.	7,84	139,61	4564	3,25	160,98	5358
14.	9,40	383,09	880	12,66	383,10	881
15.	1,65	118,61	1684	1,74	114,11	1623
16.	15,27	41,24	715	13,12	47,03	729

Source: Authors

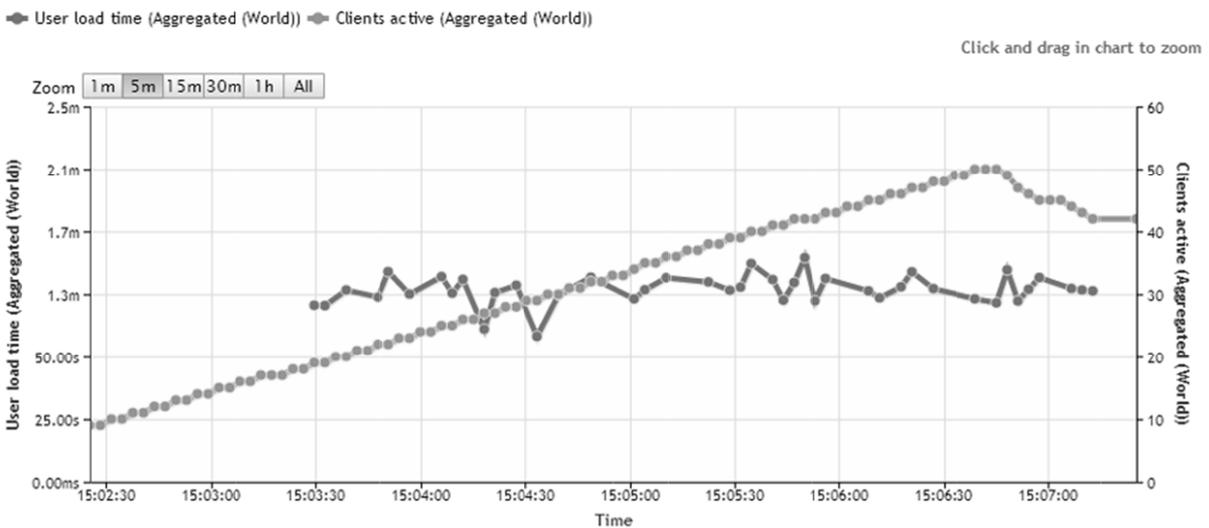
On the Fig. 1 is shown the process of throughout the load test for the web-based GIS application with the shortest average user load time, which is not commercial (Plzeň Region). On the Fig. 2 is then shown the process of throughout the load test for the web-based GIS application with the highest average user load time – also is not commercial (South Moravia Region), which varies during the testing from 60 to 90 seconds and the virtual user has to wait more than 1 minute to load the web-based GIS.

**Fig. 1: The process of throughout the load test for the application of Plzeň Region**



Source: Authors

**Fig. 2: The process of throughout the load test for the application of South Moravia Region**



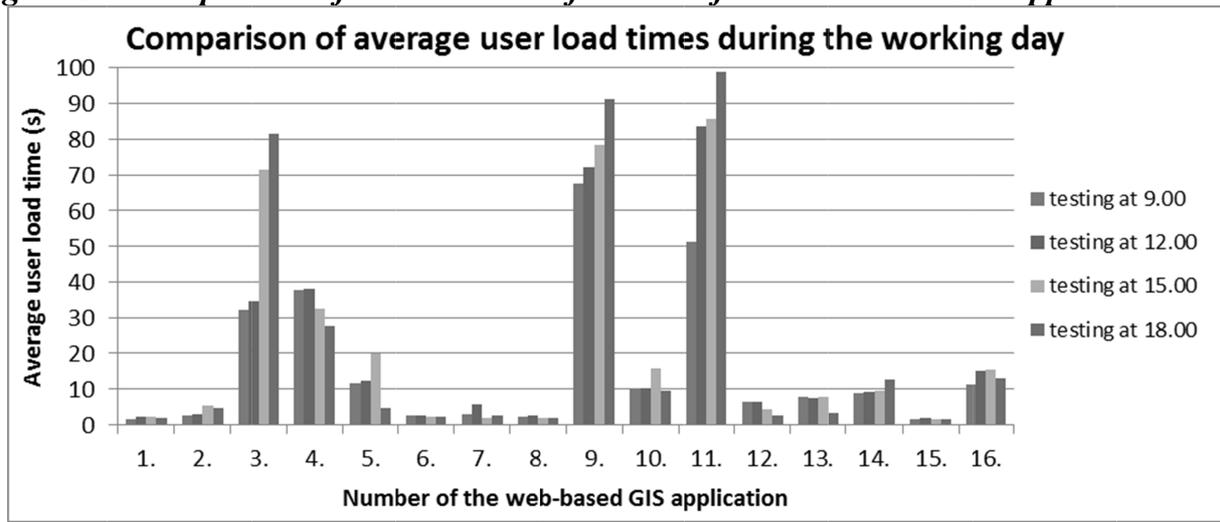
Source: Authors

## 6 Results and discussion

The collected data were then statistically analysed using Microsoft Excel 2010. The most important metric is user load time, which is connected with the size of received data, which means, how much of the data had to be transferred from the database of web-based GIS application to the virtual user. Thus, the type and size of spatial data on the providers' side is important, because it directly affects the response time. The ratio between data received and user load time should be maximized for a single user. It is an indicator of the performance of the database on the providers' side. Load Impact also offers other characteristics of tested web-based GIS – e.g. URL content type distribution and URL content type load time distribution, which shows how much of the total load time was a certain type of resource responsible for. Thus, there have been found other factors, those have an influence to the performance of web-based GIS applications. These are: use of java, javascripts files and Cascading Style Sheets (CSS).

The comparison of average user load times during the day is shown on the below Fig. 3. The web-based GIS application with the shortest user load time is Mapy.cz, which is the commercial product and is also more popular than the other commercial product aMapy.cz, which has user load time more than 10 seconds. The figure also shows, that values usually increase during the day (peak load is mostly at 15.00), except Karlovy Vary Region, Zlín Region, South Moravia Region and Region of the Capital City of Prague. According to results, these 4 applications are also java-based applications. Most data were received from Zlín Region. In addition, none of peak loads, in the meaning of stress testing which affects the stability of application, weren't able to measure, because for testing were used only 50 virtual users concurrently.

**Fig. 3: The comparison of user load time for each of the web-based GIS application**



Source: Authors

The user load time could be also influenced by hardware configuration (bandwidth, servers, databases), which is unknown for us, and software configuration of the web-based GIS application, which can be only partly described by this study (use of java, images etc.). User load time is also connected with the other aspects like availability, capability, latency, error rates, etc. However, in this case study were measured only: load time for a single user, data received and total number of received requests. No further functions of web-based GIS or use of external Web Map Services (WMS) were measured or compared for their performance requirements.

Although using cloud-based testing is, in many cases, more realistic than testing in the lab, simply using this kind of testing is not enough to ensure the most realistic tests. Real users often have access to less bandwidth and slower connection than a load generator of the cloud-based testing tool in a cloud data centre, so they will have to wait longer than the load generator to download all the data needed for a web-based GIS application. Results of this comparison could be also different by the use of another cloud-based testing tool and probably by users' knowledge of using selected web-based GIS application.

## Conclusion

For each of the web-based GIS application, average user load time was measured, however differences were relatively large, especially for application of the region of the Capital City of Prague, Karlovy Vary Region and South Moravia region, where is average response time for a single user more than 1 minute, and also the peak load is at 18.00.

However, user will be probably more patient waiting for a map to load than for a search result, thus the optimal user load time should be definitely under 10 seconds. Bottlenecks and problems in the application performance are usually affected by the use of a lot of java, javascripts and CSS. Commercial web-based GIS applications are also better than applications of public administration authorities, especially Mapy.cz.

Results of this study may help the regional authorities to improve their web-based GIS applications from the performance point of view and also the better use of their computing resources, as well as cost effectiveness. Cloud computing technologies and services have a great potential for GIS and testing of web-based GIS applications. Most of works already discussed GIS and spatial data in the cloud environment. They are focused on deployment of GIS – e.g. implementing a web map service on Google App Engine in [4] or spatial data managing e.g. a framework for retrieving, indexing and accessing of spatial data in the cloud environment in [19]. However, security and privacy are mostly mentioned as two main risks in cloud. Typical security and privacy examples include data storage and data transfer protection, vulnerability management and remediation, personnel and physical security, application security, data privacy and identity management [12]. Information security in the cloud environment is also discussed in [5] and it's focused on the security of the data from the physical point of view.

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# THE BUSINESS (IN)SIGNIFICANCE OF THE PRE-DOT DOMAIN NAME WORDING

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**Abstract:** *Post-modern society and the global market heavily rely on the employment of information technology. Today's successful business conduct requires an appropriate e-domiciliation within the Internet. The Internet space is spread in Top level domains (TLDs), each composed of sub-domains. The e-address consists of a numeric or word reference pointing to the relevant TLD (a pre-set few letters behind the dot) and sub-domains (a creative conglomerate of letters before the dot). Each TLD has its own legal and economic regime, and businesses should carefully study them in order to choose the best fitting TLD, so as to have the right few letters behind the dot. However, it is unclear how much importance should be placed on the word designation of the sub-domain(s), i.e. there is no conclusive evidence or commonly accepted consensus about the (in)significance of the letters before the dot. This issue requires an interdisciplinary study and a comparative analysis reflecting actual business reality. This paper summarizes underlying technical setting, concepts and functions of the pre-dot part of a domain name, rejects contemporary shortcuts and presents the domain name and its role from a global and super-temporal perspective. Considering the insufficiency of statistical data, independent studies and generally agreed upon conclusions, even approaches, it is vital to review underlying concepts and settings, and to engage in a comparative analysis along with observations from various angles. The ultimate goal is to enhance awareness and to open a constructive dialogue about intellectual property and domain names, in short, to move from the black-and-white and all-or-nothing perception to a more nuanced approach differentiating between domain names from the same TLD .*

**Keywords:** *Domain name, Top Level Domain (TLD), Sub-domain, Internet, TLD .com.*

**JEL Classification:** *K29, L21, M15, O32, O34.*

## **Introduction**

The 21<sup>st</sup> century society is heavily dependent upon the utilization of information technologies, and the crisis of the last few years places an even greater emphasis upon the appropriate use of the Internet for business conduct all over the world [6]. As a result, e-presentation, e-marketing and e-shopping have become vital hallmarks of current businesses. Thus, it is very instructive to observe and evaluate the relationship between the four basic levels of e-shopping (www presentation, e-commerce, integrated services of e-commerce and e-business conduct) and the actual results of a business, and to assist with addressing this critical issue so as to take full advantage of connecting the business strategy with new technological elements [1].

A myriad of issues is inherently linked to this material. The e-status of a business and its e-activity can be scrutinized while focusing either on form (the e-domiciliation of the business per se – its domain name) or on content (the substance of the www pages and their functions). Within the form branch of the issue, i.e. in the consideration of the e-address, emphasis must be given to the study of the word transcription of the numeric code address indicating the concerned Top Level Domain (TLD) and one of its sub-domains.

There are neither ostensible shortcuts nor intrinsically right or wrong answers regarding the selection of a TLD venue for business conduct, i.e. there is no nonpareil, not one clearly the best for a business TLD. Each has its own regime and brings advantages and disadvantages and awareness, if not directly knowledge, about it, which leads to an educated decision, which is a keystone to a strategic and competitive advantage [6]. Even more than ever before, *scientia potentia est* - knowledge is power [2], while identifying some of the key factors to make the selection and a cursory and comparative analysis of TLD .com, TLD .eu, TLD .cz, TLD .tk, new gTLD), etc. [6]. In sum, regarding TLDs it is a 'given' that it matters for business, i.e. that academics, practitioners, consumers and even the general public at large realize that there are various TLDs with different frameworks, regulations, and orientations.

However, the significance or insignificance of the wording of the part of the domain name pointing to subdomains within a certain TLD appears to be highly arguable and complex. Unlike the post-dot part indicating the pertinent TLD and its regulatory and technical regime, the pre-dot part does not, per se, lead to a creation or to an accession to a certain system. In other words, the pre-dot part of the domain name is predominantly just a designation, not an abbreviated indication of the pertinent regulation.

Considering the global and unified, or at least standardized and protocol-formatted, Internet space distribution, a comparative and interdisciplinary research and analysis seems both highly appropriate and worthy of development, in order to determine the proper meaning, function and ultimate (in)significance of the pre-dot domain name wording. Logically, a relevant study requires an understanding of the structure of the domain name, the functions assumed by a domain name and the (in)direct relationship between them, while focusing on the pre-dot part. Thus, firstly the issue of the Internet, protocols, technical conversion system, and the domain structure with its labeling needs to be analytically covered (1.). Secondly, the nature, regime, and functions of a domain name are to be listed, reviewed and critically scrutinized (2.). Ultimately, the impact of the wording of a domain name for business should be observed and considered, with respect to the structure and function of a domain name (3.). Due to the technical and inter-disciplinary features of the topic and the links to social aspects and statistical data, the discussion and problem solving ideas are presented through all of these three study parts. This should allow one to draw conclusions and bring more light in this dim area and enhance the awareness regarding the evaluation of the pre-dot part of the domain name.

## **1 The Internet, domains and their labelling**

The Internet is a phenomenon of the current society and a critical communicative channel operating in a highly technical and formalized manner. Thus the impact of any part of a domain name cannot be understood and fully appreciated without an awareness about the Internet structure and protocols (1.1), as well as the resulting code version (1.2) and verbal version (1.3) of e-addresses.

### **1.1 Internet structure and protocols**

The Internet is a net of nets, of which probably the most important is the World Wide Web (www). The access of computers or other information technology devices is organized through the hierarchy of domains [10]. Within the virtual Internet space there are large domains (TLDs) and each of them is further divided into sub-domains (second level domains), sub-domains of sub-domains (third level domains), etc. [8].

From a technical point of view, the Internet is a global, worldwide and free connection of network knots through computer networks. These knots are personal computers designated for access to the Internet, server computers for hosting sites and even Internet sites, websites, as such. Each knot has its own numeric address determined by protocols - Transmission Control Protocol (TCP) an Internet Protocol (IP), i.e. TCP/IP. A verbal transcription of a domain IP numeric code address, a domain name is used for practical reasons. Since 1984, the communication between computers, sites and networks is facilitated by a system of special computers proceeding according to set rules and converting a unique numeric code address into a unique verbal address and vice versa - the Domain Name System (DNS)[7]. The DNS is composed of three elements – the hierarchically built Domain name space, administrative Name servers, and communicative Resolvers [3].

## 1.2 Code version of an e-address – formats according to IPv4 and IPv6

Each knot must have a unique address and this address needs to be expressed in a formatted manner. Currently, two protocols and their combination are used – IPv4, IPv6 and IPv6 Dual. In principle, all numbers, meaning numeric code addresses, pursuant to IPv4 have been used, and as a result the public should move to IPv6, offering almost unlimited combinations, and thus unlimited amounts of numeric code addresses. For various reasons this transition does not go smoothly, and both protocols co-exist and even a dual regime has been established.

According to IPv4, the format of an e-address of a knot, i.e. an IP resource, is composed of four sections called octets or quads separated by three dots. Each of these four octets is a number between 0 and 255. An example of an IPv4 address reads as follows:”IP Address (IPv4): 19.117.63.126.” [13]. Thus, the numeric code address of an IP resource in the format IPv4 is 32 bites, composed of 4 bytes each of 8 bites. The total extent is 32 bites and the number of variations of an IPv4 address reaches  $2^{32}$ , i.e. the maximum number of IPv4 addresses available is 4 294 967 296.

**Tab. 1: IPv4 format of an e-address**

IPv4			
Structure of an IP address	byte.byte.byte.byte	quad.quad.quad.quad	
Extent of an IP address in bite(s)	= (2 bite +2 bite +2 bite +2 bite) + (2 bite +2 bite +2 bite +2 bite) + (2 bite +2 bite +2 bite +2 bite) + (2 bite +2 bite +2 bite +2 bite)	= 8 bites + 8 bites + 8 bites + 8 bites	= 32 bites
Number of variations of an IP address	= $(2^2 \times 2^2 \times 2^2 \times 2^2) \times (2^2 \times 2^2 \times 2^2 \times 2^2) \times (2^2 \times 2^2 \times 2^2 \times 2^2) \times (2^2 \times 2^2 \times 2^2 \times 2^2)$	= $2^8 \times 2^8 \times 2^8 \times 2^8$ = 256 x 256 x 256 x 256	= $2^{32}$ = 4 294 967 296

Source: [8]

According to the IPv6, the format of an e-address is composed of eight sections called segments or quads, separated by seven colons. Each of these eight segments is a number

between 0 and 9999 and/or letters up to FFFF. An example of a IPv6 reads as follows:”2001 : db8 : : 1234 : 5678” which implies that the three middle segments are 0 [13]. Thus, the numeric code version of an e-address in the format IPv6 is a 128 bites number and the number of variations of an IPv6 address reaches  $2^{128}$ , i.e. the maximum number of IPv6 addresses available is a number beyond our ordinary imagination and should not be exhausted in the near future.

**Tab. 2: IPv6 format of an e-address**

IPv6			
Structure of an IP address	byte:byte:byte:byte:byte:byte:byte:byte: byte:byte:byte:byte byte:byte:byte:byte	quad:quad:quad:quad: quad:quad:quad:quad: quad:quad:quad:quad: quad:quad:quad:quad	
Extent of an IP address in bite(s)	= 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites + 8 bites	= 32 bites + 32 bites + 32 bites + 32 bites	= 128 bites
Number of variations of an IP address	= $2^8 \times 2^8 \times 2^8$ $\times 2^8 \times 2^8$ = 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256 x 256	= $2^{32} \times 2^{32} \times 2^{32} \times 2^{32}$ = 4 294 967 296 x 4 294 967 296 x 4 294 967 296 x 4 294 967 296	= $2^{128}$

Source: [8]

### 1.3 Verbal version of an e-address - domain name

The above indicated technical aspects make it obvious that the use of a numeric code version of an e-address, especially in the new format IPv6, is highly impractical and definitely not consumer friendly. Therefore, DNS offers a conversion system translating the numeric code version of an e-address, regardless whether in the format IPv4 or IPv6, into a verbal version, including letters and numbers, called a domain name. A conglomerate of prima facia meaningless numbers is converted into a conglomeration of letters and numbers which can, and probably should, have a meaning, i.e. from a long, hardly memorisable, figure a designation is created.

Thus a domain name is primarily a verbal identification of an IP resource, a name, a designation, and/or address of a personal computer, a server computer or a website. It is not an accidental concatenation of characters. Contrariwise, it has a clear and pre-determined tree structure, including a several letters formation separated at least by one dot. In the case of more than two parts and thus more than two dots, the ranking goes according to the level of generality and specialty. Typically, the first letters in the formation, placed leftmost, concern a concrete computer and the last letters formation, at the very right, concerns a large group of computers, networks and websites – a top-level domain (TLD). The part before the dot, followed by letters indicating the TLD, can consist either of only

one segment (e.g., bulgari.com, yahoo.com) or of more segments separated by dots (e.g., us.bulgari.com, telegraph.co.uk, finance.idnes.cz). However, for the purpose of this paper only the simplest form of the domain name will be considered – only two parts separated by the dot, i.e. the pre-dot freely chosen wording and the post-dot pre-formatted abbreviation indicating the TLD.

Traditionally, TLDs are grouped and categorized into two types – generic (international) TLDs „gTLDs“ and country code (national) TLDs „ccTLD“. Registration within a gTLD gives the chance to a natural person or legal entity, regardless of their origin, nationality or place of incorporation of business, to obtain a verbal transcription of the concerned numeric code address, i.e. a domain of a certain level within a gTLD. The ending abbreviation of such a TLD will indicate the orientation and specialization of lower level domains appertaining to this gTLD, such as „.com“, „.org“, „.net“, „.edu“. If the concerned natural person or legal entity prefers a classification according to the country of origin more than the classification according to the specialization, then it is appropriate to opt for an identification at a national basis, within a TLD of a particular state – ccTLD, according ISO 3166, e.g. „.cz“, „.de“ or „.uk“.

In 2012, the namespace consisted of 22 gTLDs, 250 ccTLDs and 30 international ccTLDs, each operated on a various model [7]. Yet due to the launch of the possibly revolutionary project of new gTLDs tailored on demand, i.e. allowing creative TLDs to anyone satisfying the requirements and paying the 185 000 USD fee, the scenery has been greatly modified in the last months. From the approximately 2 000 applied for already, several hundreds have materialized and thus in 2013 are operational new gTLDs attractive for business, such as .auto, .business, .discount. [14].

## **2 Nature, regime and functions of a domain name**

Domain names have a sui generis nature and their regime is rather unconventional (2.1). Contrary to popular belief, they have the potential to perform a multitude of functions (2.2).

### **2.1 Nature and regime of a domain name**

Domain names were created by a technical and economic need, and their primary purpose and goal, to facilitate the identification and communication within the Internet, have enjoyed a common, general, and consistent endorsement world-wide. Similarly, there is wide-spread agreement that the virtual domain name is not a mere facilitating instrument without value or just with a nominal value. Nevertheless, a number of professionals and academics with a law background have unsuccessfully tried to put a domain name within conventional categories of assets protected by law and e.g. some legal experts have been inclined to conclude, from the unfitness of the domain name to satisfy the definition of classic immovable-movable assets or the definition of intellectual property assets, that domain names do not reach the objective right regime – *in rem* (such as ownership rights) and can at most be covered by the subjective and freely negotiated right regime – *in personam* (such as claims from a contract). However, such degradation and disrespect of the role, functions, and importance of a domain name violates the basic economic premises and social mandates of our 21<sup>st</sup> century society. It is inefficient to drown oneself in lengthy academic discussions. Instead, a plain observation of the current practice gives crystal clear answers, i.e. solid evidence that the domain name has the potential to have a significant value and to be a rapidly growing economic commodity and a valuable element of enterprise with a possible fair market value exceeding millions of EUR and USD [8].

Since the domain name has evolved into one of the most valuable information commodities and generated disputes, even the positive law starts to recognize it and attempts to regulate it [9]. These attempts are more on the level of national law rather than international law and the lead has been taken within a few legal systems – the USA, the EU, and Finland. Thus the backbone of the regulatory framework of domain names consists of intra-related and pre-formatted Private law contracts [8]. The Czech re-codification of the Private law, namely the emergence of the new Civil Code, changes the understanding of the definition of thing (as opposed to person) and modifies the reach of ownership rights. Further, it moves, or according to some authors just confirms the belonging of, the protection for and against domain names in the field of law against unfair competition [12]. It will be most interesting and instructive to observe and compare the efficiency and efficacy of these various angles to approach the need for domain name protection – intellectual property law, law of contracts, competition law, etc. As well, the clarification and greater understanding of the nature of domain names and their regime should be instrumental in improved accommodation with respect to functions to be performed and satisfied by domain names.

## **2.2 Functions of a domain name**

From a user's point of view, the Internet has a wealth of functions – to inform, to communicate, to do business, etc. [10]. The principal services of the Internet include the www system, DNS, e-mail correspondence, online communication, file sharing, social nets services, etc. [8]. Similarly, the rather easily memorisable identification string defining the part of Internet realm has a number of functions. It would be remiss to perceive the domain name as just a verbal version of the e-address, i.e. a consumer friendly transcript of an original numeric code generated based on the used IP.

It is correctly observed and rightly suggested that the domain name is relatively close and similar to a business billboard [12]. The legal as well as factual resemblance is obvious and results into a conclusion about the 2<sup>nd</sup> function of a domain name, i.e. that the domain name is an address and a marketing device.

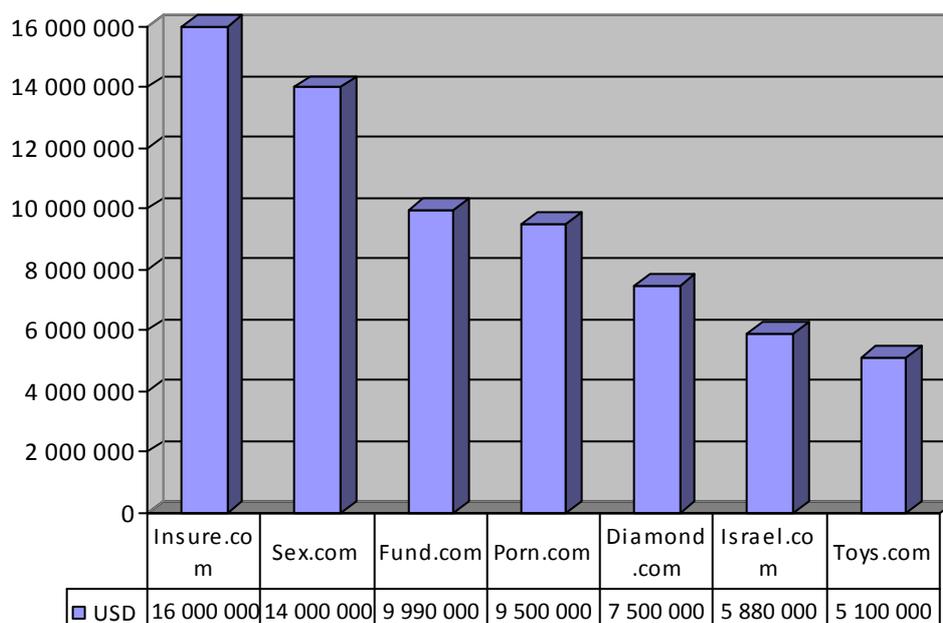
Certainly a domain name has additional functions, some of them are more, others less accepted. Discussions about them reflect the domain name potential for technical, association, trademark and other aspects. In sum, a domain name in its entire wording is apt to perform a number of functions. Even parts of a domain name generally operate in more than one single area.

The post-dot part of a domain name is predominantly a regime indicator and the source of a general orientation, the pre-dot part has a strong marketing and self-image potential which can but does not need to be exploited. The prices for the transfer of a number of domains and their domain names belonging to the TLD Number 1 for business, TLD .com, have several times exceeded 1 000 000 USD in the last few years. Since the domain names with the post-dot part “com” can have a fair market value of 1 USD or up to 16 000 000 USD, the marketing and other features must be present. In other words, had the domain name only a technical-conversion function, then there could not be a consistent and huge difference in transfer prices of domain names from the same TLD.

The following table - Fig. 1 presents the prices at which have been publicly traded and sold selected domain names from TLD .com. Naturally, this is just the tip of the iceberg, and many deals and sales are confidential, or at least the amount of the negotiated and paid prices are. Nevertheless, for mere observation purposes TLD .com is the best

target, because this the TLD with the greatest differences between the trade prices for various subdomains, in other words the free market trade price for domains from TLD .com runs anywhere from 1 USD up to 16 000 000 USD. Interestingly enough, statistical data provided by national Domain Registries demonstrate strong price differences for domains from ccTLDs of various comparable states, such as EU member states. In other words, it is more likely to find expensive domain names from TLD .de than TLD .fr or TLD .it or TLD .es and definitely more than TLD .cz, where prices seldom exceed a price of 100 000 CZK and virtually never that of 1 000 000 CZK (40 000 EUR). In any event, even subdomains from TLD .de with prices reaching up to several hundred EUR are way behind subdomains from TLD .com [4].

**Fig. 1: Resale of selected domain names belonging to TLD.com in 2006-2010**



Source: [5]

### 3 Impact of the wording of a domain name for business

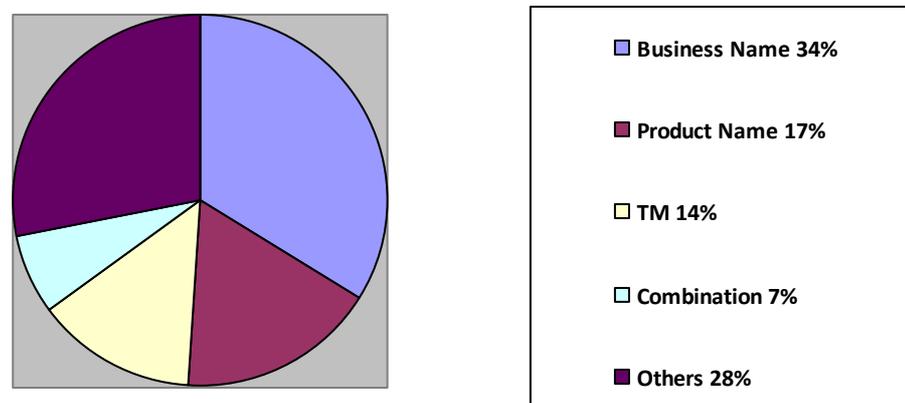
Just as a consensus has not yet been attained about the number, scope and impact of the functions of a domain name, so there are ongoing discussions about the importance, or arguable lack of importance, of the wording of a domain name for business. Bearing this in mind, it is instructive to review and analyse data about the approaches to domain name wording from various perspectives and by different groups - businesses (3.1), consumers (3.2), and others (3.3).

#### 3.1 Current perspective of businesses - a moderate importance of the wording of a domain name

The creation and maintenance of an e-address, particularly of a domain name, has its costs. Businesses carefully select in which TLD they want to establish and maintain their presence. However, once this decision is made, they need to phrase the “free style” pre-dot part of the domain name. Despite certain technical limitations due to the IP functionality and required uniqueness of a domain name, there is still a large space for discretion and for one’s own personal preference manifestation.

There is no great abundance of studies in this respect, as a matter of fact, within the EU such studies are generated only by EURid with respect to TLD .eu and various German resources with respect to TLD .de. Due to the rather short existence and hybrid nature of TLD .eu, German studies seem to be the most suitable for further analysis. They indicate that individuals are inclined to use their first and last names in the pre-dot part of their domain name and rather stay away from creative expressions for their domain names [11]. For businesses, regardless of their legal form, the situation is more complex and a multitude of options needs to be considered and accordingly priorities given. Certainly most all businesses in the EU and in the USA have established their e-presence on the Internet and have at least one domain name. Recent observations suggest that businesses within the EU, particularly in Germany, have a strong preference for the identity of their business name, i.e. the business designation as used during their business conduct, and as is probably registered within the Commercial Register or other Business or Trade official list, to be copied into the domain name. Fig. 2 shows that the pre-dot part of a domain name within TLD .de is twice as likely to reflect the business name than the product name, and almost three times more likely than the trademark.

**Fig. 2: Composition of the pre-dot part of a domain name**

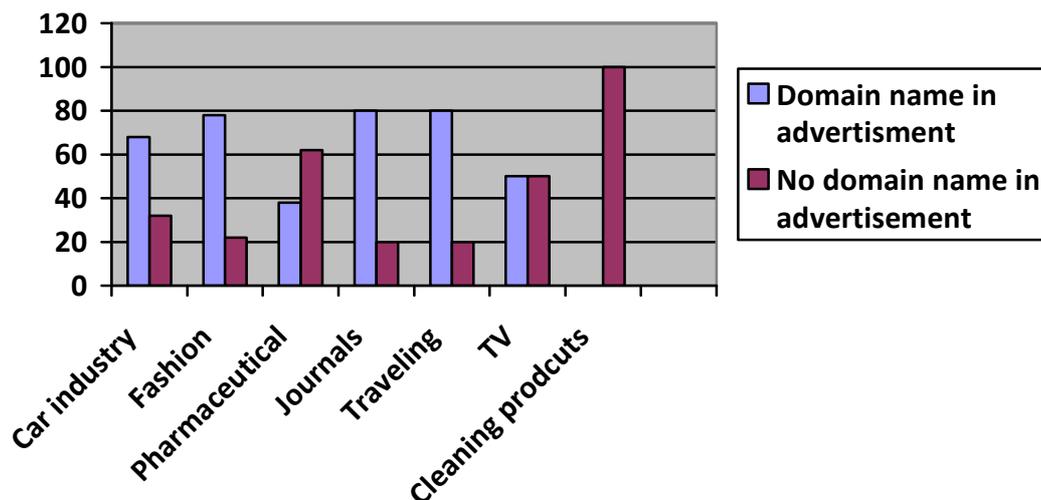


Source: [11]

The statistical data across business and industry branches provides strong evidence that the domain name is perceived by businesses more as their (business) name, possibly as well the name of their key product and key trademark, than as an indication of their line of business, of their business association or a manner of free style fancy labelling [11]. The combination of these elements, e.g. business name plus TM, is rather rare, probably due to the common drive to keep the wording of a domain name “short and sweet.”

However, there are variations based on the business and industry branches and conclusive studies have spelled out the strong relationship between the domain name, meaning the pre-dot wording, and the marketing campaigns in certain fields. The banking, financial, insurance, media, IT, and travel agency industries extensively use their domain names in their advertising campaigns. The suggested explanation of differences between industries refers to the necessity, feasibility, and usefulness of providing information about the business and its products on the Internet [11]. In other words, cleaning products are much less suitable to be a subject of a domain name campaign than retail business products, as shown in Fig. 3.

**Fig. 3: Use of domain names in marketing and advertisement**



Source: [11]

The collected data and resulting conclusions can be presented both ways – either domain names are created to fit into the strategically planned advertising and marketing endeavors of the particular business, or the domain name shapes the wording of advertising and marketing. Naturally, other factors should be taken into account, such as the possibility to be found through search engines (google-it) or the (in)appropriateness to be presented in the Internet setting.

In sum, businesses, especially those from Germany, do care and expend much time and effort to phrase the pre-dot part of their domain name, they definitely recognize the business significance of the pre-dot part of their domain name and are prepared to pay for it. The very wording depends upon the industry involved and generally tends to mirror the business name, or in certain cases, to reflect the line of production or the very product. Often *Melius est nomen bonum quam divitiae multae* - A good name is better than great riches, i.e. an excellent name is an over abundance of assets. At the same time, the low prices and unclear trend and often confusing and unstable domain name strategy by Czech businesses with respect to domains from TLD .cz may be explained various ways. They may be due to the underestimation and under-employment and misunderstanding of their domain names, or by the rejection of TLD .cz by Czech businesses and their preference for directly competing TLDs, such as TLD .eu or TLD .com [6]. Perhaps, they are a result of the pragmatic and short-term strategy mirroring the current customer attitude in the Czech Republic.

### **3.2 Current customer perspective - the variable importance of the wording of a domain name**

The understanding and behaviour of consumers, at least from some countries, seems to follow different patterns and does not necessarily share the business self-proclamation drive through domain names mirroring business names. Although the majority of EU consumers begin their on-line shopping by visiting the www pages of the selected business individual or entity, i.e. they go to the domain under the domain name selected by this individual or entity which probably sounds like its business name, the Czech consumers blatantly reject it and prefer a different online strategy – they go after the best identifiable price via search engines [1]. Since at least one half of Czech consumers shop online

basically by searching through price comparing pages and media, the wording of a pre-dot part of a domain name is stripped of a number of its functions and is “degraded” to serve just as an address where reportedly the goods or services can be purchased for the lowest price. Over 90% of Czech consumers use the price comparative devices and shop accordingly, that behavior makes them EU champions in this respect [1].

It is beyond the scope of this paper to analyze and explain why Czech consumers are much less responsive to the wording of domain names than customers from other EU member states. Nevertheless, it can be suggested that Czech consumers are not exposed to strong and well developed domain name strategies, and that Czech businesses do not aggressively integrate their domain names within their intellectual property portfolio and marketing and mere observation indicates their weakness in customer care. Thus the Czech consumers, heavily driven by price comparison, are not really exposed to an effective and efficient use of domain names and, as a result, can hardly be expected to become loyal customers in the tangible, as well as the intangible, world. This is blatantly a missed opportunity and this paper supports the statement that the sub-domainizational expression can have a much higher consumer business impact in economically comparable countries.

In sum, consumers have a dramatically diversified approach to the importance and impact of the domain name of a business. From the operational management point of view, a preliminary research suggests that Czech businesses should rather spend time and effort to place their domain name on the top of Internet search engines rather than on the wording of its pre-dot part. However, such a conclusion definitely does not apply to other EU countries. From a strategic management point of view, Czech businesses should reconsider their attitude towards intangible assets, their intellectual portfolio and general concepts about how to reach and maintain a competitive advantage. This should ultimately lead to the conclusion that a domain name is a rather inexpensive and flexible instrument that has a tremendous potential, but only, it should go without saying, if backed up by an appropriate product and service.

### **3.3 Analytical and statistic perspective – evaluation of intangible in information society**

Our society seeks relevant information and businesses make educated decisions and obtain a competitive advantage due to objectively optimal choices. Therefore, it seems logical to pull together data to weigh and measure domain names, in particular their pre-dot part, and find out how much they are worth.

Apparently, such a calculation is rather obscure and confusing. First, probably only a tip of the iceberg amount of data is currently available. Secondly, this data demonstrates tremendous discrepancies. Thirdly, conventional analytic and statistical methods do not seem suitable.

Nevertheless, some constants can be identified and stated in a general manner about domain names. The statistically supported formula goes as follows:

- More than 50% of domain names are not used and do not lead to a functional www page [4].
- At least 90% of domain names do not have the potential to become an asset that can be commercialized [4].

- No more than 1% of domain names have the potential to be negotiated for a significant amount of money;
- Even in the middle of the economic crisis, there are instances of the payment of millions of USD for domain name transfers, especially of a domain name with the post-dot part “.com”;
- Domain names belong to the intellectual property portfolio, which has been ever-increasingly overshadowing other components of enterprise, i.e. the value of the intellectual property constitutes the biggest value of an enterprise

*Manifesta non eget probatione* - Obvious does not need a proof. Thus, each domain name is unique in its wording as well as in its impact, importance, and value.

## **Conclusion**

Post-modern society relies on information and educated decisions about the optimal business venue, and in the eternal search for a competitive advantage the e-address definitely matters. Beyond a doubt, the post-dot part of the domain name indicates the pertinent regime, including fees and rules and thus has a significance for business.

The pre-dot part does not serve as a regime reference and thus is not per se of a business significance. The statistical data as well as superficial observation leads to minimizing the business impact of the large majority of the pre-dot domain names, and this trends even to domain names belonging to the most significant business TLD - TLD.com. Nevertheless, the remaining small 10 % part has a potential for significance and the even tinier 1% has an immense significance for business and is a critical business asset. The fair market value for the domain name transfer is dictated by the market. Indeed, there is a true market for some domain names with more or less successful auction situation, direct and even indirect trade mechanisms. No reasonable business would pay millions of dollars for a mere code transcript without any business significance. The fact that there is no abundance of data and that the data is not easily able to be reconciled means that the pre-dot part of a domain name has, under certain circumstances, a true business significance and should be further researched and not rejected. As a matter of fact, the great disparity between the little available data should be interpreted in the manner that the pre-dot domain name wording and its functions and potential are neglected by a large section of the academic community, as well as Czech businesses. Certainly, there is not "the" domain name operating as a key for a permanent business success, but each domain name is capable of influencing business conduct - positively or negatively, strongly or weakly. A domain name is a virtual instrument vital for the 21<sup>st</sup> century society, and its further interdisciplinary study and appropriate business applications are absolutely critical. Established trends and (so far) available knowledge strongly suggests that the pre-dot domain name wording matters, and it is just a question of time when more statistical data and independent studies will be presented to further support this statement. The black-and-white perception of the pre-dot domain name wording, especially its degradation to a neutral code-letter transcript, denies the already noticeable emergence of a modern business venue.

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# COMMUNITY PLANNING AS A METHOD OF REGIONAL DEVELOPMENT IN THE SOCIAL SECTOR IN PRACTISE ON EXAMPLE OF PARDUBICE CITY

**Jan Mandys, Michaela Černajová**

***Abstract:** Social policy is one of the cornerstones of public policies that directly or indirectly affect all citizens. Due to the transformation processes in this field in the last five years, taking place in the Czech Republic, we can say that there has been a strengthening of regional policies (regional and municipal) as implementers of local social policy. The paper discusses the method of community planning of social services as a tool of regional development in the light of experience with this method in Pardubice in the context of the ongoing preparations for the second community plan. The paper draws attention to the dilemmas of basic principles of this method in practice. The study uses data from the current research on the situation of social services in the city of Pardubice, which was conducted for the purpose of decision-making processes in the regional social policy.*

***Keywords:** Community Planning, Social Policy, Regional Development, Research, Social Services.*

***JEL Classification:** I38, Z13, Z18.*

## **Introduction**

Regional development dimension into the problem reflects in particular by the public administration has a duty to strive for that region, which is managed, was constantly in equilibrium, it means, that it should be the place where people like to live and where they can meet all their needs. Besides the standard instruments of decision policies can be used for regional management of their decision-making processes (social policy planning) two basically the same method, medium or community planning. Law No. 108/2006 Coll., about social services as amended, imposes an obligation to plan regions. In the case of municipalities, it is only a recommendation to create plans. This paper will deal only by dale community planning at the level of municipalities.

Community planning is practically the only way in which the public can participate in the development activities of the municipality (place where they live). In order to plan development activities relevantly, it is necessary for their formation have adequate data (information) base. This base in case monitored area (town Pardubice) can be seen from our perspective for the insufficient and also that existing resources are not fully used efficiently.

Public administration must constantly deal a range of problems and it does not have the necessary financial resources for creation of specific analysis. Creation of regional social policy is influenced by the political program of the ruling parties, and must succeed with many requirements of other resorts as for example culture, sport, education, health, etc. The majority of society often does not see social policy as an attractive and therefore it is not prospective also for political representation and even though it concerns a growing number of people who have found themselves in a difficult social situation.

This paper describes the issue of compliance of selected principles of community planning with a focus on the involvement of the public and users of social services. The

public and the users are key attributes of the entire system, but presented results say that their engagement is problematic. According to the relevant community planning methodologies involvement in these two components of the system can be considered as the basic and most important principle of the described method.

## **1 Statement of a problem – Community planning**

The mission of community planning is ensuring the availability of social services. Relevant items are detection of the state of provision of social services in the area and also the needs that are not filled. These two parameters are compared with the quantity of financial resources that the municipality spends on social services. In the process of consulting each other community plan develops, which is a consensus between what is possible and what has been marked as required or preferred. Community planning is a method that can be at the level of municipalities or counties plan social services to meet local specificities and needs of individual citizens [10].

Community plan is generated in the process of mutual consultation and it is consensus between what is possible and what has been marked as required or preferred. Community planning is cyclical, spiraling repetitive process, involving a community.

In case those social services are not planned in the region it brings with it usually [13]:

- The service user is dependent on the offer provider, which may not reflect its specific needs.
- User is only passive recipient without the participation in the creation of system of social service.
- Public financial resources are directed to the social sector without knowledge of the specific needs of service users.
- There is not the possibility of evaluating the accuracy of social policy, the quality of social services, and evaluation of the effectiveness expended public finances.

There is research study what Acosta a Toro [1] realized in which shows needs of homeless people. This study shows that social policy no always reflects the reality. In general, we can say that society thinks that the homeless need the following: housing, food and work. This study shows that the primary need is not in the opinion of respondents living, but quite different, society unexpected needs. The first is physical security. It means not only shelter from inclement weather, but also protection against aggressive attacks - a homeless person has against the common person 150 times more probability to die a violent death [4], living in the ranking was on the fourth place, work on the eighth and even free food up to sixteenth place. The output of planning is not only its own community plan, but also a system of communication between users, providers and authorities of social services. This system, if it is functional, enables simplified approach to information and increases the ability of the municipality to react to change of social environment on their territory.

### **1.1 The principles of community planning**

The principles of community planning can be viewed from two perspectives. The first is an exhaustive list of principles that created methodologists of community planning and in all publications are practically the identical, the only difference between their list and detail of the description: [6, 14, 12, 15] In particular there are following principles:

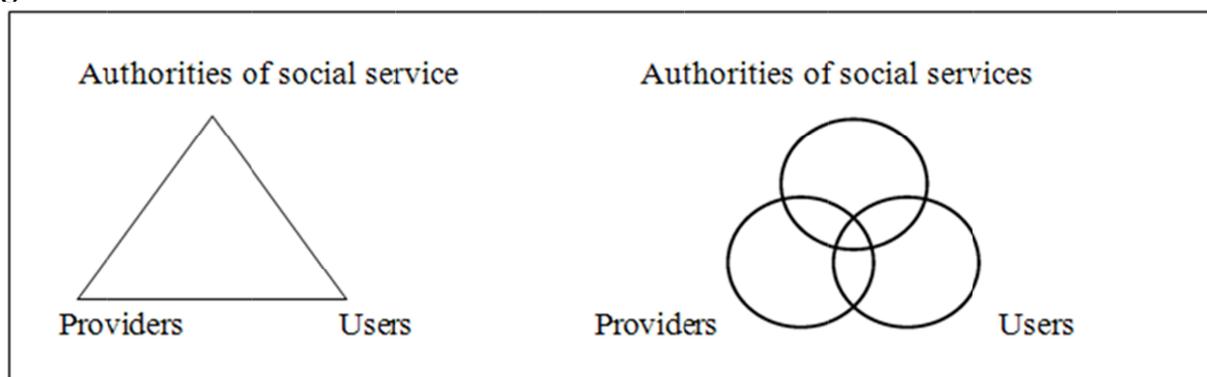
partnership between all participants, involving the local community, searching new human and financial resources, work with information, process formation of community plan is as important as the resulting document, taking into account the already established and proven cooperation, compromise between wishes and possibilities, cyclicity.

The second principle from our view we regard the principle of the triad. Usually triad means interested parties in process of community planning. This is the [12]:

- **The contracting authorities:** municipalities, local governments, etc. They are a source of financial resources which finance social services. Another can be labor offices through active employment policy.
- **Providers:** nongovernmental organizations, organizations established by institutions or private subjects. To some extent this group includes employers, who create new jobs.
- **Users:** final beneficiaries, services, public.

The triad is depicted in two ways. Either as a triangle or as interconnected circles:

**Fig. 1: The triad**



*Source: [2; 15]*

Very simply, we can say that the basic principle of this method is the involvement all interested parties in the community, where planning is focused and this principle will be further discussed.

## 2 Community planning in practise

Zatloukal [15] is critical to the concept of “triad”. He emphasizes the fact that the triad includes as well as employers and methodologists of community planning always talk about the involvement of other entities. Therefore, he considers the concept of "triad" for misleading and he points out rightly that in planning there are also participate experts, representatives of institutions, who work closely with social providers of social services (police, doctors, offices, etc.), relatives, the public and also users, providers and authorities of social services.

### 2.1 Community planning in Pardubice

The chapter deals with the practical fulfillment of the principles of community planning using the example town of Pardubice.

Pardubice as a statutory town is among the ten largest cities in the Czech Republic. It's about 18 % inhabitants of the entire Pardubice region. Community planning takes place

in Pardubice since 2006. For process of community planning there were originally formed five working groups according to the target groups of users of social services. Actually there are seven working groups [9]:

Our opinions will be based on the results of the research "The situation in the social services in Pardubice", which was created for the purpose of development and decision-making activities in the territory [10]. The research was divided into the following basic parts: the socio-demographic analysis of the monitored area, poll survey among the public, poll survey among representatives of Pardubice, questionnaire survey among users of social services.

There were 827 respondents participated in the study, including:

- The city council of Pardubice: 18 respondents,
- public: 384 respondents,
- providers of social services: 72 registered services and unregistered related activities,
- users of social services: 353 respondents.

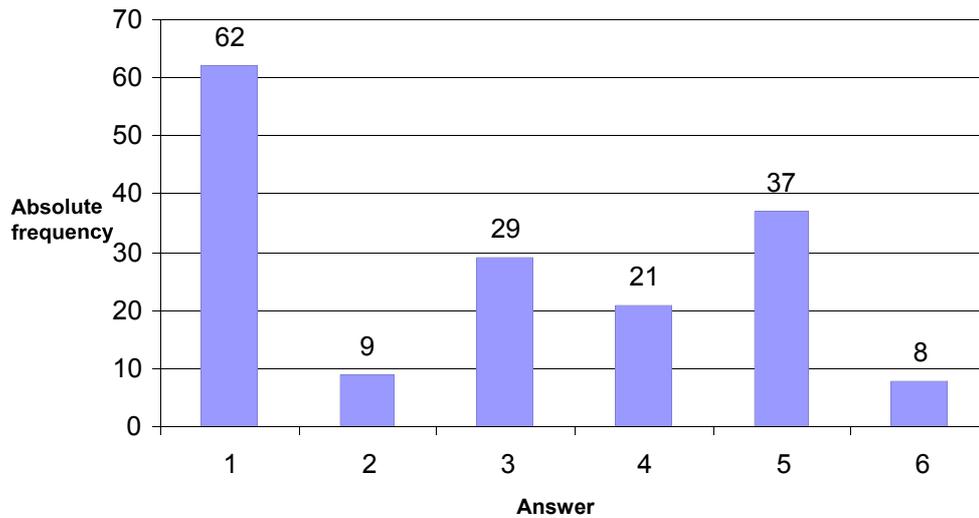
For statistical evaluation was performed using the methods of systems engineering. System engineering typically uses a wide range of methods and sources, since they deal with complex, non-trivial problems. These sources and methods are constantly evolving, reflecting technological progress. Despite this constant evolution is one of the results of problem-solving model studied reality. This could be interpreted, modified and conclusions should serve as a support material such as effective implementation of social services. At this stage we use as statistical methods (statistical analysis tools) and data-mining modeling techniques. Basic characteristics of data-mining are that it is derived from the analysis of the content data, rather than a pre-specified by the user or researcher. Furthermore derive only descriptive characteristics, but also predictive. Their advantages for the issue in detail for example. [5; 7; 8].

For the main parts of the study we selected parts of the study that related a survey among the public and users of social services. To support our argument, however, we will use the information from the respondents - representatives of the city.

### **3 Problem solving**

The public needs necessary information to participate to some process of activity. The study shows that the most respondents (193) told that they have never heard about community planning. 103 respondents told that they have heard about community planning but them don't know what it means. This fact is a clear signal that it is necessary to promote community planning, not only to extend the working groups with representatives of the public, but also system of social services at the municipal level should be propagated. The next picture shows information sources that respondents use to get information about community planning.

**Fig. 2: The resources of information about community planning for the public**



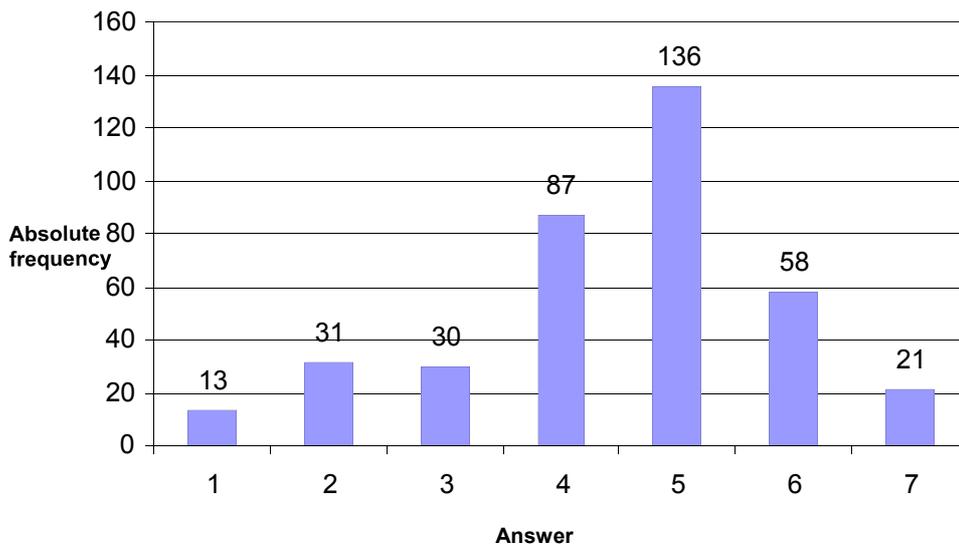
1 = From the Town hall newsletter; 2 = From the Town hall; 3 = From the internet; 4 = From the family; 5 = From the friends; 6 = Another answer.

*Source: [10, p. 65]*

In this regard it shows that most respondents received information about community planning in the Town Hall newsletter. This fact is clear stimulus to give adequate scope to this newspaper. The natural relational network of respondents (friends and family) works very well. The using of the internet ranked as the 3rd. It assumes targeted interest in the area or respondent found information accidentally during watching other website which are connected with community planning.

Total 223 respondents (from the total number 384) don't want to participate to community planning, because they think that it's waste of time (87 respondents) or they don't have a time to participate (136 respondents). 58 respondents actually don't want to participate, but if they had adequate information, they would think about participate at community planning. In this point there is some scope for intensive information campaign that it can induce public to participate to social life. This potential is hidden in the 136 respondents, who say they don't have a time. Due to low informing what community planning is, we can assume that even a part of this group of respondents would think to find some time to participate.

**Fig. 3: Interest of public to participate to community planning**



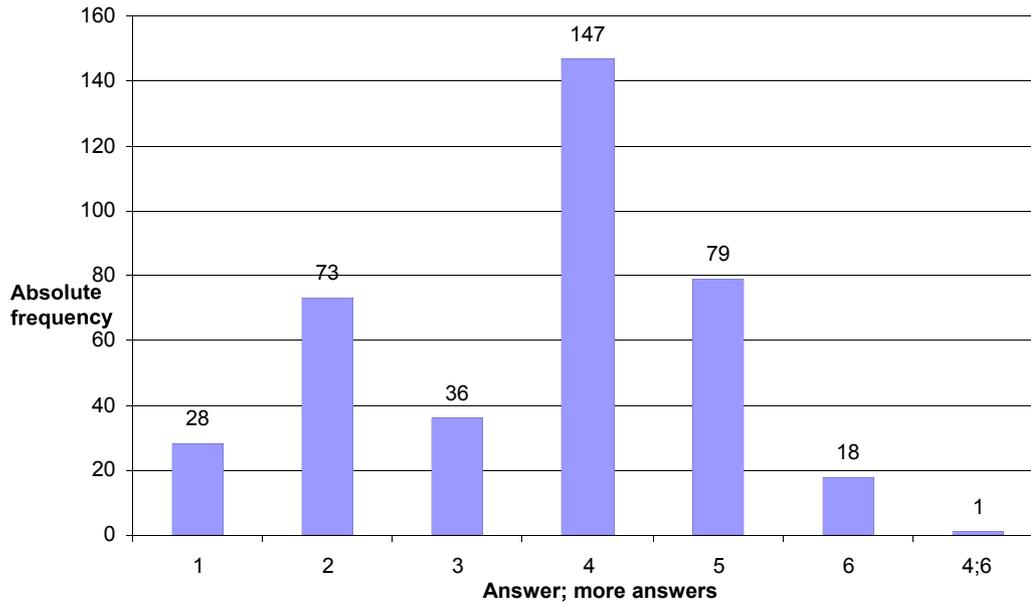
1 = Yes, I think it's useful; 2 = Yes, I want have an information; 3 = Yes, I can influence things around me; 4 = No, it's waste of time, nothing will change; 5 = No, I don't have a time for this; 6 = No, but if I had needed information, I would think about it.; 7 = Another answer.

*Source: [10, p. 66]*

The results show that 74 respondents are interested in the process of participation. The motive is the feeling usefulness of community planning and to influence the life around themselves. 31 respondents would like to be participated because they want information about social sphere.

There is important question. Do respondents think that they will need s social services in future? The resulting answers are shown in the following picture, where it is evident that the majority of respondents aware that every person can ever in your life need a social network.

**Fig. 4: Thinking about future using services**

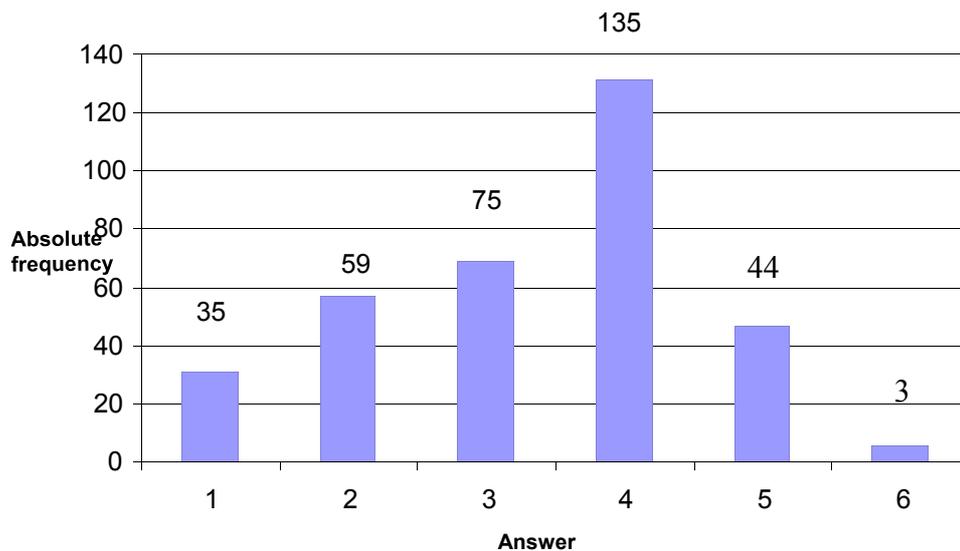


1 = No, I don't think that the similar situation could occur; 2 = I have never thought about the similar question; 3 = The respondent not answer; 4 = Yes, everyone is a potential client; 5 = Yes, when I will be in high age; 6 = Yes, in case that...

Source: [10, p. 69]

Just as the public user is a key element of the triad. Like the public, users don't have much information about community planning. Only 94 respondents have some information about community planning. 44 respondents haven't heard and doesn't want to be interested, 135 respondents said that they have never heard about community planning.

**Fig. 5: Knowledge of users about community planning**



1 = Yes; 2 = Yes, a little; 3 = rather no; 4 = No, respondent has never heard about it; 5 = No, respondent doesn't want to be interested; 6 = Other, please, tell us.

Source: [10, p. 69]

There it is necessary for the interpretation of the previous result to add what sources respondents have use for getting information. If they have any, there are in particular other

sources (respondents have information about community planning from social services that they use), The Town Hall newsletter, friends and the internet.

The main question of the analysis is question about interest of users to be member of work group. All 240 respondents from total 351 (2 respondents didn't answer) don't want to participate to process of community planning. 22 respondents from them would think about participate, if they had information. The most respondents (115 respondents) noted they lack of interest. 38 respondents gave their support to community planning although their lack of interest to active participates.

**Tab. 1: Interest of users to participate to process of community planning**

<b>Interest of users to participate to process of community planning</b>	<b>Num.</b>
Yes, I think it's useful	33
Yes, I want to have an information	27
Yes, I can influence things around me	13
Yes, but I cannot because of my health or social situation	28
No, I don't have an interest to participate	115
No, it's waste of time, nothing will change	27
No, I don't need to participate, but I think it's useful	38
No, I don't have a time for this	38
No, but if I had needed information, I would think about it	22
Another answer	10

*Source: [10, p. 69]*

As public, users answered that they don't have a time to go to working groups and also they think it's waste of time because nothing will change. Only 13 respondents see possibility to affect things around themselves in community planning. Regarding number of respondents we can say it isn't significant number of answers, but about 30 respondents would like to participate. They cannot participate because of their bad health disposition or bad life situation. The results of analysis shows some respondent participate in community planning, some respondents don't know how they should answer and they don't choose any variant of answer, some respondents would like to go to working group but they don't know what they should do here. These results show that there is some expanse for bigger medialization of community planning.

Considering triad we have to mention political aspekt - Authorities of social services. There are 39 respondents. Representatives should reflect the research knowledge of their constituents. According to their views about social sphere public interests as follows (arranged one after another according to the order): sport, transport and healthcare, environment, culture, education, employment opportunities, social affairs, safety in the municipality

From these results we can see, that it's very difficult to satisfy basic principle of community planning. The basic principle of community planning is participating all of interested subjects. The results of the analysis bring much knowledge to sphere of regional development at social policy.

We can state very simply that analysed region has a potential of participate more target groups. This participate have to be targeted given to that people are interested in social sphere especially when they need it. It means, when they feel to be affected with adverse

social situation. The emphasis has to be put to relevant information resources and also political support this sphere is important.

#### **4 Discussion**

Although the principles of community planning was undergone of critic we can note conclusively that in reality we don't have another relevant method of planning of social policy at the regional level. It depends on how this method is conceived, what continuity to other strategic planning in the municipality or region is.

The systematic and adequate informative campaign through relevant sources of information is the starting point increasing public participation and other subjects. The presented results it may see that high publicity of community planning is the solution to increase the involvement of other parties. On the other hand, the results show us a underlying aspect in the interpretation that ordinary citizen considers as potential user of social services in many cases, but they will resolve their situation in most cases when the situation will come. This fact confirms the statement particularly existing users. Based on observed, so we can note that adequate information about community planning can help not only the enlarged membership of working groups, but also to help people threatened social exclusion to a better and easier orientation at the beginning of solutions to their problems. Political situation is also very important aspect. In other words - activity of councillors. The results of the analysis show that political interest in social problems isn't so high.

#### **Conclusion**

We think important failing of method of social planning - unwillingness important elements (public and user of social services) of define system to participate to planning. The only solution is dogmatically insisting on methodological procedures of the process, but flexibly adjusts the process according to the real conditions in the environment. However, this procedure requires "understanding" authority, managing authority which supports community planning. The system should be set up as a partnership rather than as two rival parties of opinion.

Although the presented results of research show little interest in public participation in community planning, the existence of the process considered for regional social policy as a key. The public is considered to be potential users of social services, and this reasoning clearly defines the order that the public has of the entire system. It is a feeling ensure further safety of citizens without the right to make their anticipated future situation and specially prepared for her. Given the results of research among users of social services in the context of the public interest, then we can conclude that the primary principle of the community planning process is the openness of the process, without pressure on the components of system to be personally involved. Openness is therefore a key attribute of the functioning of the system and its effectiveness must be based on the skills of professionals involved and clearly defined expectations and ideas of local social policy, which informs the public through their elected representatives.

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# THEORETICAL APPROACHES TO EMPLOYEE APPRAISAL METHODS

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**Abstract:** *Performance appraisal is the most important process of HR management in an organization. Regular employee appraisal can reveal the status of their performance and it also provides information necessary for any further operation of the organization, eventually its development. To have this information correct, it is important to choose the appropriate procedure used for employee appraisal. There are many performance appraisal methods available for various situations. However, none of them approaches the employee appraisal with integrity. Therefore, it is the manager who is responsible for choosing such method being the most suitable for the conditions of the organizations. Prior to a successful selection of the appraisal method, there is the knowledge. This paper provides a summary and description of the employee performance appraisal methods, their classification pursuant to local and foreign authors and a brief advantage and disadvantage identification when used in practise. One of the conclusions of this article is that there is no consensus of options and the classification of the work performance appraisal methods between Czech and foreign authors.*

**Keywords:** *Work performance, Performance Appraisal, Method, Evaluator, Person Evaluated.*

**JEL Classification:** *M12.*

## Introduction

The aim of each organization is to be powerful, successful at any market, reached the profit required and to improve its value on an on-going base. The organization is capable of reaching permanent competitive advantage only if it manages to provide, connect, coordinate and efficiently use its available resources so the competitors cannot imitate it. One of these resources and the key element, at the same time, is the people (human capital) using which the organization fulfils its goals. However, in order for the organization to be able to use these resources (not only human resources) in an effective way, it must be capable of evaluating the state and way how they contribute to fulfilling the goals defined. In case of human resources – employees, we talk about their appraisal, namely performance appraisal.

### 1 Statement of a problem

Employee appraisal is an important personal activity dealing with:

- Finding out how the employee carries out their work, how they fulfil the task and requirements of the work place, what their behaviour and relations to their colleagues, customers or any other person they contact in the course of their work;
- announcing the appraisal results to each employee and discussing these results with them;
- searching for ways how to improve their performance, behaviour and implementing measures that should help [1].

Choosing a suitable appraisal method forms an integral part of the appraisal itself. Since the professional literature provides a wide choice of multiple appraisal methods and, at the same time, divides them into several groups, this article is motivated by the desire to create a summary of existing methods publishing by the Czech and foreign authors dealing the employee performance appraisal and their division.

## 2 Methods

The aim of the work is to create a summary of existing methods applicable to the performance appraisal of employee, their description and classification according to different criteria based on professional literature.

The article was processed systematically. Initial study of Czech and foreign professional literature, scientific articles, their analysis and comparison, provide the necessary basis for the theoretical background processing work. It also enabled the author to create a transparent system of existing appraisal methods which respect to existing different opinions of experts on this issue.

## 3 Problem solving

### 3.1 Appraisal Methods in terms of Czech Authors

When appraising an employee, the methods serve as a support function. They help to monitor and record performance and behaviour standards fulfilment [2]. Depending on what appraisal area they cover and what time frame they are aimed at, we distinguish three groups of methods. In terms of the time frame, we can talk about three methods: methods focusing on the past, methods focusing on the presence and methods focusing on the future [3]. By combining the criteria said we get an appraisal methods matrix (Tab. 1). A more accurate name would be “Appraisal Matrix by Others”, since there is a lack of self-appraisal which is very important [3].

**Tab. 1: Appraisal Matrix**

	<b>Input Evaluation</b>	<b>Process Evaluation</b>	<b>Output Evaluation</b>
<b>Methods Focusing on the Past</b>	Practice Evaluation (Certificates)	Key Event Method	Result Recording Result Comparing
<b>Methods Focusing on the Presence</b>	Assessment Centre (AC) Development Centre (DC) Managerial Audit Exam	Sociogram 360° Feedback	Observation on Site Mystery Shopping
<b>Methods Focusing on the Future</b>	Potential Evaluation	Supervision Intervision	Management by Objectives (MBO)

*Source: [3]*

Similarly as Hroník [3] and Dvořáková [2] also uses appraisal method division based on the time frame and she names two groups. The first group includes the methods focusing on the past (they assess the work performed), while the other focuses on the future and identifies the employee’s development potential (Tab. 2).

**Tab. 2: Employee Appraisal Methods by Dvořáková**

Methods Focusing on the Performance Carried out	Methods Focusing on the Future
Management by Objectives	Self-evaluation
Comparing with Standard Performance	Assessment Centre/ Development Centre
Performance Testing and Observing	360° Feedback
Evaluation Questionnaire	
Evaluation Scales	
BARS Methods	
Critical Case Method	
Evaluation Reports	
Comparing Employees	

*Source: [2]*

Also Duda [4] recognizes two basic groups of employee appraisal methods – the methods focusing on the past and methods focusing on the future.

The advantage of the methods focusing on the past lies in their focus on the work already performed which may also be measured in a certain way. A clear disadvantage is that the results at this work may not be changed. The most common appraisal procedure focusing on the past including appraisal scales, questionnaires, key event method, sub-report method, comparative appraisal procedures [4].

Appraisal focusing on the future aims at the future performance, employee’s capabilities are appraised or future tasks are set. These methods include the self-appraisal, psychological appraisal and appraisal centers (the Assessment Centre) [4].

Also Wagnerova [5] deals with the problems of dividing the appraisal methods and she states the following general classification:

- Characteristic Measurement – if the appraised person has features, such as reliability, diligence, initiation, creativity, etc.,
- behavior Measurement – what behavior should or should not be demonstrated in the work activity,
- result Measurement [5].

Systems based on measuring characteristics are the most widely used appraisal type. They are divided into graphic scales, combined scales, forced choice and essay. Their advantage includes their simplicity to be developed and versatility to be used at a wide work position range. Nevertheless, they do have their disadvantages. In particular, they are very subjective. In opposite, the behavior systems (focused on measuring behavior) are more advantageous; they are based on objective monitoring of work behavior. If the behavioral approaches are developed correctly, then they are valid, reliable and relatively without any appraisal mistakes and they are not bias.

The three most important types of behavioral systems are the following:

- Critical Incident Techniques (CIT),
- Behaviorally Anchored Rating Scales (BARS),

- Behavioral Observation Scales (BOS) [5].

In their original form, the methods focusing on result measurement or also management by the objectives were a performance appraisal form based on the objectives in relation to monetary indicators of the company. Recently, the Management by Objectives (MBO) is focusing on meeting the objectives set by the employee connected with the strategic objectives of the organization. Based on clearly set specifications of the performance objectives, the employee is informed of in advance, they know exactly what is expected from them [5].

A significant number of existing performance appraisal methods provides enough space for other ways of their division, classification and fragmentation. However, several authors working in this area simply list and describe these methods, eventually refer to mistakes which can occur when using a specific method in the appraisal process. Besides authors [3, 5, 2, 4], as already mentioned, there are other Czech authors [1, 6, 7, 8, 9] dealing with the employee performance appraisal methods. The methods mentioned in their publications are giving in table for convenience (Tab. 3).

**Tab. 3: Appraisal Methods by Authors Selected**

Evaluation Methods	Authors Selected				
	Koubek	Hospodářová	Kociánová	Duchoň	Pilařová
Management by Objectives	X	X	X	X	X
Evaluation based on Meeting Standards	X		X		X
Free Description	X	X	X	X	X
Evaluation based on Critical Cases	X	X	X	X	X
Evaluation Using Scales	X	X	X		X
Checklist (Questionnaire)	X		X	X	
BARS Method	X		X		
Methods based on Creating Employee Ranking by their Performance	X		X	X	X
Assessment Centre (AC)	X		X		X
Evaluating Interview	X		X		X
360° Performance Appraisal		X			
Development Centre (DC)			X		
Competency Based Interview (CBI)			X		
Psychological Tests and Questionnaires					X
Task Setting Method					X

Source: [1, 6, 7, 8, 9]

Appraisal by objectives set (Management by Objectives) is a method when the employee enters into an agreement with his/her superior on the main objectives of their work for a definite period of time; the plan as set when and who the objectives are to be met, the criteria are set for appraising whether the objective is method and the objectives are regularly appraised until such period agreed expires [2].

A Free Description is a universal method requiring the Evaluator to describe the performance of the Evaluated person, usually pursuant to the Appraisal List [1]. The employee is assessed verbally, usually in a written form. The criteria are not fixed. The

appraisal is demanding on the Evaluator's judgment [8]. The free description is a method without any structure prescribed. It is based on the employee performance appraisal prepared by the Evaluator in the form of the dialogue. They might be a suitable way how to encourage the open discussion and dialogue by the Evaluator and the Evaluated Person [6].

Appraisal based on the critical cases, or the key event method [4, 3] or the key incident technique [5], requires the employee and their superior set performance incidents (behavior) distinguishing successful and unsuccessful performance at the work given [5]. The method requires the evaluator kept written records of the cases occurred when performing the work by a certain employee. The records include information on working behavior illustrating both satisfactory and unsatisfactory performance [1]. The method is based on assessing significantly good or bad work results or behavior of the employee for the period they are to be assessed during [4]. The evaluator briefly records critical events happened to the employee in the course of work. This is particularly the case of highly efficient or inefficient behavior [2].

Appraisal using the scale is the most applied method. The evaluator rates the performance and behavior by checking the degree of fulfillment of a certain criterion. Each level is scored or verbally defined. The amount of points obtained for all criteria provides overall appraisal [2]. The evaluator assesses the work performance of an individual using the scale on a subjective base [4]. This evaluation appraises individual work aspects (e. g. the amount of work, the work quality, presence at work, independence, willingness to work, accuracy, work familiarity, etc.). Three types of evaluation scale are used – numerical, graphic and verbal [1]. Usually, appraisal using a scale (rating) means an appraisal of performance and behavior of the employee pursuant to a predetermined scale. This appraisal compares the work performance pursuant to a series of relatively standard products containing some generalized performance characteristics and individual personality traits [6].

The methods using a questionnaire (a checklist) requires the evaluator chose relevant verbal appraisal of the work performance and personal features of the employee assessed [4]. The evaluator assesses the work performance and behavior by checking the certain box in the questionnaire which, in their opinion, identifies the best how the particular employee meets the relevant criterion [2]. The checklist presents certain formulations relating to the employee's behavior and the evaluator marks if there is a certain type of behavior in the employee's performance or not [1].

The BARS Method (Behaviorally Anchored Rating Scales) assesses the behavior required for a successful work performance. It focuses on the approach to work, observation of the work procedure and performance efficiency [7]. The BARS Method is based on creating rating scales for individual work behavior aspects and on the definition of the required work behavior at a specific working place as a prerequisite for efficient work performance [2].

Methods based on creating employee ranking pursuant to their work performance consist in comparing the performance of two and more individuals. The most common example is the variable comparison (when the evaluator chooses the best and the worst employee from the list and records them as the first and the last in the list and the evaluator continues until all employees are listed), paired comparison (when the evaluator compares the first employee with the second, third up to the last employee from the list in a sequence based on a certain criterion and the evaluator chooses the better one from the pair compared)

and mandatory comparison [1]. With the method of mandatory comparison, the task of the evaluator is to assign a certain percentage of employees with a certain level of work performance so as to match the description of the appraisal to a normal division [4].

The Assessment Centre (AC) method identifies the social characteristics and the features of the employee. The employee's information is obtained based on testing and solving case studies and exercises when the assessed employees are monitored and assessed by different evaluators [2]. The Assessment Centre is a diagnostic and training program based on a simulation series of typical managerial work activities when the work ability of the applicant for a managerial post is tested [4]. The disadvantage of AC Methods is that it informs on the current performance of the employee in artificial conditions, and it is not necessary that such performance would correspond with their performance in real work [1].

The appraisal interview is an opportunity to exchange opinions and views between the employee and their superior. The appraisal interview is used to align the requirements for performing a certain activity (work activity requirements) and actual abilities (skills, knowledge, experience) of the employee [7].

360-degree feedback, sometimes also called a three hundred and sixty degree multi criterion performance appraisal or multi source assessment, is used for a complex, multi-rater feedback relating to the employee performance [6]. It is designed to provide a complex overview on the employee's activities. The evaluators include supervisors, consumers, direct and indirect, and sometimes also subordinates. It also includes a self-evaluation [5].

### **3.2 Appraisal Methods in terms of Foreign Authors**

As in case of the Czech authors mentioned in this work, the foreign literature is also not so uniform in the area of employee performance appraisal. While in the Czech literature, the time aspect was the most commonly used criterion in the method classification, dividing the methods to past focusing methods, present focusing methods and past focusing methods; the foreign publications state more ways of classifying the methods, namely as follows:

- Traditional a Modern Methods [10, 11, 12],
- methods focusing on objectives, performance (measurable values) and rating (judgmental) [13, 14],
- scaling, descriptive and performance (goal-oriented) methods [15],
- comparative, evaluative, descriptive and behavioral methods [16, 17].

The authors consider the performance-oriented methods (paired, group comparison, rating scales and reports, questionnaires, critical events, etc.) to be traditional methods. The modern methods partially overlap with future-oriented methods and methods developing the employee potential. These methods, as indicated by the authors given, are shown in table (Tab. 4).

**Tab. 4: Traditional and Modern Evaluation Methods**

Evaluation Methods	Authors		
	Deb	Khurana et al	Randhawa
<b>Traditional Methods</b>			
Direct Ranking Method	X	X	X
Paired Comparison	X	X	X
Rating Scales (graphic, linear, verbal)	X	X	X
Forced Ranking Method	X	X	X
Obligatory Division Method	X	X	X
Free Description	X	X	X
Group Evaluation	X		
Critical Event Evaluation	X	X	X
Research Method	X	X	X
Evaluation Reports	X	X	X
Checklist		X	X
Employee Comparison			X
<b>Modern Methods</b>			
Management by Objectives	X	X	X
Assessment Centre	X	X	X
Human Resources Audit	X	X	X
BARS Method	X	X	X
360° Performance Appraisal	X	X	X
Psychological Tests			X

Source: [10, 11, 12]

The second group consists of so-called goal-oriented methods (performance methods) and the rating methods (judgmental methods). The performance methods focus on assessing the actual outputs and work performance based on the standards established [13]. The objective methods use well measurable indicators as the base for quantitative appraisal [14]. The rating (judgmental) methods include assessment techniques and raking techniques and are the most used methods when appraising the performance. Also, they include rating scales, BARS Methods, ranking or employee comparison [13]. According to [14], these methods require the manager to estimate and assess the performance level of the employee. They are based on comparing the employees and their appraisals used the rating scales.

Pursuant to [15], another way of appraisal methods classification is to divide them into scale methods, eventually descriptive and performance-oriented methods. The scale methods, according to the authors, include:

- Checklist – as a set of information (statements) representing the characteristics and performance of an employee as the most;
- Graphic rating scales;
- BARS Method [15].

The descriptive methods are used in the case when the managers require written or oral assessment. The base of this group is the free description method (sometimes also called the essay method) and the critical event (incident) method [15]. The last group of methods, referred to by the authors, as the performance-oriented methods, consists of Management by Objective.

Bogardus [16] mentions her own classification of appraisal methods stating the comparison methods, evaluation methods, descriptive methods and behavioral methods. The comparison appraisal methods compare the performance of an individual or employees. The paired comparison, rating method and mandatory division and forced selection methods are the most frequently used. The author refers to the checklist (questionnaire) and rating scales as to the most common appraisal methods. The descriptive methods require the manager to describe the performance of the employee assessed. This group also includes the essay methods (free description), critical incident (event) method and rating reports. The last part of the classification consists of the behavioral methods, including the BARS method, as the most famous, and the continual feedback, as the most effective in terms of the appraisal itself. These may be identified with the 360-degree feedback [16].

The division of methods, referred to by Schermerhorn [17] is in compliance with the Bogardus's [16] classification. However, unlike Bogardus [16] they do not talk about descriptive and behavioral methods, but only about comparative and evaluating methods. Without any classification, they state the critical incident method and 360-degree appraisal (feedback) as alone standing. According to the authors, the comparative methods include assessment, paired comparison and mandatory division. The evaluation methods consist mainly of rating scales and the BARS Method [17].

#### **4 Discussion**

The high number of existing appraisal methods may be more or less confusing for the appraising employees. An important prerequisite for selecting suitable and effective methods is their knowledge. If the appraising employee knows the methods, procedures, they contain of, and the situations, when these methods are to be used in, they can choose the most effective method. The rating scales may be referred to as the most frequently used method. This method can be used universally and it is often used in the practice. The costs for making it are relatively low; it is not time demanding; and, mainly, it can be applied when appraising the managers and creative employees. Its main disadvantage is the scope, contents and abilities to express, which is individual for every person. For this reason, it is difficult to compare different appraisal. Assessing the performance using objective indicators as the main advantage appraisal based on standard fulfillment. However, this method does not allow comparing the performance in different job categories; it is used for appraising the production workers as the most frequent. Other methods, presented in this work, are relatively time demanding, not only on their preparation but also on the appraisal itself. The BARS Method and checklist also require a careful preparation – specifics form for various jobs or groups of jobs. The critical incident (event, case) method may be disputable when understanding and interpretation of the critical event by the employee

and their superior may differ, thus causing conflicts and tension between them. In addition, the method requires regular record of the appraising employee taking too much time, and therefore they become boring after a while. Significant time and financial demand comes with the assessment centre method. For this reason, it is applied only with candidates for managerial positions, mainly with university education. Its advantages include significant assessment complexity; however, on the other hand, it informs on the employee performance in artificially created condition, and such performance is not necessary equal to the performance in real environment

Regardless how many methods are described in professional literature, the evaluators often tend to use methods which are the easiest to understand and manage not only for them but also for the evaluating employees. Usually, the rating scales and rating (evaluation) reports are applied the most. Even if the best theoretical ones are the BARS method and management by objectives, these are very demanding to create and use.

## **Conclusion**

The current concept of personal management is based on the fact that quality assessment of an employee serves for obtain higher work performance and quality activities and also for employee development, since it evaluates how the employee is capable of handling the requirements of their job and in intermediates information and ideas necessary to improve their work. The result of the employee appraisal is the appraisal of positive characteristics of the employee, as well as stating the reserves in their performance and abilities for any further development. However, the right selection and determining the evaluation criteria is not a sufficient guarantee of an effective assessment of the employee. Therefore, it is necessary to choose the correct method or a combination of methods for the work with the criteria set and to determine fixed conditions under which it is to be used. There are many appraisal methods; each of them having its own advantages and disadvantages or being suitable for different groups of employees. The author tried to elaborate a complex list of the existing methods which may be applied in practice. The author considered opinions of the Czech professionals as well as foreign professionals. Based on the literature, author prepared several approaches, eventually opinions on the appraisal method classification and she provided detailed information, equally, on their description. Regarding a specific selection of the method or the combination of the method, the author thinks that the evaluator must be clear first who and what they want to evaluate, then the time range set for the evaluation and the time range for the preparation of the evaluation itself.

Like the Czech authors, even the foreign publications, there is no consensus of opinions on the classification of the work performance appraisal methods. Many authors make their own ways of classification, while the others follow a simple list of existing methods and their description. In spite of this, all authors are uniformed when talking about the appraisal methods actually used and how they are marked. At the same time, majority of the authors thinks that using one individual method in the appraisal process is not sufficient, and therefore it is necessary to use a combination of several suitable methods for a specific situation. In these circumstances, the evaluators may avoid several mistakes when appraising but also they are capable of assessing the employee assessed in more objective and accurate manner.

However, no matter what type of appraisal method the organization uses, these must be reliable, accurate, generally accepted and effective.

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That article is part of the advance research project of the CULS. The main objective of the project is to devise appropriate methods of employee performance evaluations in agriculture. Aim of this article is not to bring new knowledge in the field of employee evaluation, but provide information on existing methods of employee evaluation. Analysis of these methods with respect to their use in agriculture and the proposal of appropriate methods that take into account the specific needs of this sector, are the subject of further research activities under the project.

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# THE DESIGN OF POTENTIAL INDICATORS LINKING THE REGIONAL AUTHORITIES EFFICIENCY AND THE QUALITY OF LIFE IN THE REGIONS

Jan Široký, Eva Jílková

***Abstract:** The need to evaluate the public administration, its effectiveness and its performance is still present. Efforts to increase the quality of public administration, to improve its efficiency and looking for new ways to do this is emphasized in the conditions of economic crisis and the lack of public funds.*

*The quality of public administration and its improvement should find an echo in the quality of life of the population, which is evaluated by both economic and non-economic indicators.*

*This paper tries to identify potential suitable indicators monitoring the interconnection of public administration performance indicators and the relevant areas, which are based on the description of existing opinions about the effectiveness and its detection using various methods and indicators, methods of synthesis, abstraction and deduction.*

*The issue is specified in the terms of the Regional Authority and the higher territorial self-government unit in the Czech Republic (region). The paper shows the great difficulty of the design of indicators linking the regional authority efficiency and the quality of life in the regions. This difficulty is due to the high number of factors affecting this relationship (flow versus state variables, external influences out of the region, priorities variance, self-government versus state administration, respectively independent versus delegated powers, different input conditions, etc.).*

**Keywords:** Public Administration, Quality, Efficiency, Regional Authority, Region.

**JEL Classification:** H70, H72, R11.

## Introduction

The area of public administration is a very current and highly discussed theme, especially regarding the question of its evaluation, effective functioning and the issue of measuring its performance both in the Czech Republic and in other countries of the EU. A proper and reliable functioning of the public administration is an essential prerequisite for economic prosperity and social prosperity of the country.

In general, there exists in society an effort for continuous improvement of the current state of the public administration, an effort to achieve efficiency in this area and to maximize public gain.

In order for it to be possible to evaluate the public administration, measure its performance, and to propose suggestions for its improvement, it is necessary to know the possibilities and opportunities, as well as strengths and weaknesses. In order to evaluate the public administration and its improvement, managerial approaches and methods using a large number of indicators which serve to identify partial performance contribute to a large extent.

The quality of public administration, its management and its improvement is one of the pillars of success of its own functioning, and this is primarily true in relation to the public at large. In the framework of its operation, it influences the life of the citizen, and they in turn constantly develop the public administration in the form of increasing the demand for public services and expected quality. There is discovered a tendency here to compare the output of the public administration with the private goods and services and demands for efficiency as in the private sector.

However, it is more problematic and far more difficult to quantify the influence of the public administration, with regard to its efficiency on the quality of life of the citizens of a given country or a specific territorial unit.

## **1 Formulation of the issue**

### **1.1 Defining the concepts of efficiency and quality in public administration**

Public administration and its position, function and principles are often the subject of numerous changes and reforms motivated primarily by political and economic influences [4]. Public administration in a free-market and democratic economy should operate in agreement with the valid legislation not only in a professional, transparent and ethical manner, but also economically, efficiently, and effectively. It is in this stated sense that the term Good Governance has been used in specialized theory, which in principle means that the public administration is connected to the participation of the citizenry and fulfills the public interest (see [20]).

Public administration is the subject of interest of several academic fields (law, sociology, economics, demographics, etc.), which determines its interdisciplinary nature (for greater detail see [17] and [9]) and also makes it more difficult to achieve a precise identification of the concept of quality and efficiency.

Defining the term quality in the public administration is not an unambiguous matter and even specialized literature does not offer a universal or satisfactory answer to this question. The quality of public administration is most often connected to its management, processes, sources, employees, partnerships and performance, regarding its institutional dimension (see [19]), compared to this is the efficiency, which in a majority of cases is generally expressed as the difference between the output and the input [5], and can be approached from two perspectives: from the internal efficiency of the organization of public administration or from the external efficiency of public administration. Other conceptions of efficiency of public administration differentiate four categories of efficiency – social, technical production, user and national-economy [12].

Contemporary authors approach the evaluation process of public administration on the basis of key requirements placed on fulfilling the tasks of public administration, which illustrate the principle of the “3E’s”, which are Economy, Efficiency, and Effectiveness; and many of these supplement this [3] with a fourth “E” (Equality, for example equal access). In Czech literature, Economy is also understood as the use of public means, where the established aims and tasks are achieved with the least amount of resources used, and a condition of this minimizing of resources is that the aims and tasks are fulfilled with the prerequisite of maintaining the quality [13].

Objective indicators for evaluating the quality and efficiency of public administration, however, de facto do not exist, as predominately it is not possible to identify the final consumer as a result of the non-competitive nature of the consumption of a majority

of public services [2] and it is not even possible to adequately measure its subjective usefulness. The efficiency and quality can only be measured by accessible indicators, which will often contain “soft information” (trust, satisfaction etc.) and can be gathered through questionnaires with inaccuracies.

While specialists have a continuous discussion regarding the definition of the concepts mentioned, the legislation states a brief definition of this in the law of the financial control of the public administration. In §2, efficiency is defined as “the use of public resources, which achieves the widest possible extent, quality and benefit to fulfilling the tasks in comparison with the volume of resources expended for its fulfillment” [1]. The law further defines the concepts of Economy and Effectiveness, where both terms logically relate to the use of financial resources. Specialized discussion, as can be seen in the aforementioned text, extends beyond this economic expression and uses a number of non-financial indicators, (subjective) indicators and comparative quantities.

## 1.2 Defining the aims of the research

This paper is an attempt to organize the accessible indicators, stress the key areas which can be evaluated and to offer a combination of indicators which could best and most objectively evaluate the performance of public (in the case of this paper Regional) administration and in comparison to the quality of life in a region (in the case of the paper the Region).

For the purposes of illustrating the researched issue was the output which is influenced by the Efficiency of the Regional Authority (indicated by the author as ERA) and on which this efficiency has a direct influence, stated by the author by the concept of Quality of life in the Region (QREG).

Schematically the aim of this paper can be expressed in the relationship (1):

$$\mathbf{ERA} (\mathbf{a}_i, \text{ii, iii, ..., n}) \rightarrow \mathbf{QREG} (\mathbf{b}_i, \text{ii, iii, ..., n}), \quad (1)$$

where **ERA** is the Efficiency of the Regional Authority evaluated on the basis of **n** indicators of **a** and **QREG** is the quality of life measured by **n** indicators of **b**, where it can be assumed that the aggregate of indicators **a** will differ from the aggregate of indicators **b** and **n** will be varied.

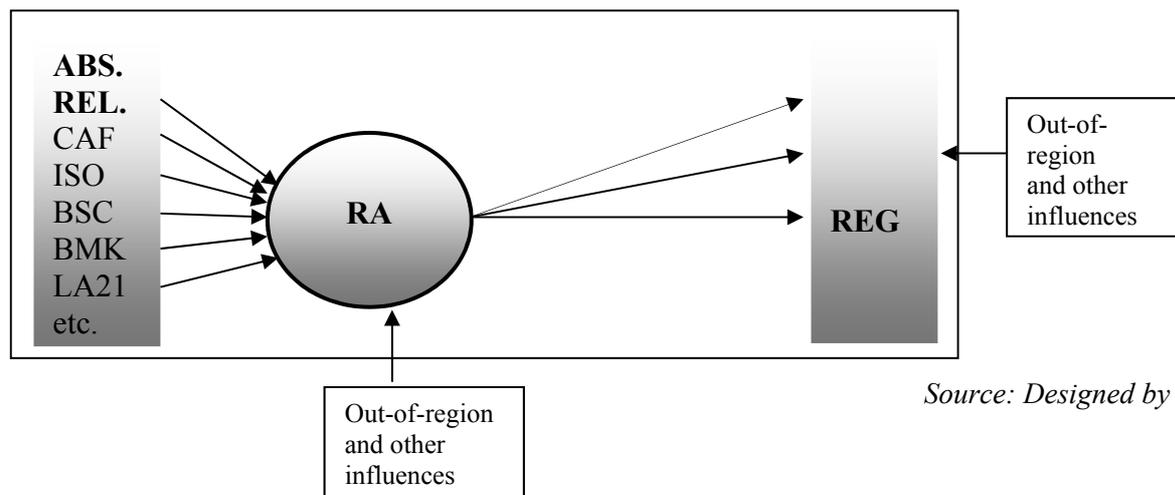
The unifying element of the relationship of the **ERA** and **QREG** is the citizen, which in its final result is also its evaluator.

The aggregate of indicators of efficiency, in the relationship (1) stated by the letter **a**, will be absolutely different from the aggregate of indicators **b** and the number **n** will also be different. The unifying element in the relationship ERA and QREG is the citizen, which in the final result is also its evaluator. The state also enters into the position of an evaluator, who through it plans, strategies, and vision express the interests of the state and intentions, respectively representatively establishing the aims and conception of the results, as well as its fulfillment.

Among the most often used indicators of the efficiency of the Regional Authority are the absolute data (number of employees, wages, etc.) and through the help of this data the relative indicators (number of acts by civil servants during a certain time period, the contribution of the state for activities carried out by the civil servant etc.). The authors, however, also consider other relative measures for the quality of the Regional Authority, such as using the method for increasing the quality of public administration and achieving the results while using these methods. The goal is therefore to determine whether indicators

of the quality of the Regional Authority, respectively the changes in the quality can influence the functioning of the Region as a whole, which is illustrated in Figure 1.

**Fig. 1: Defining mutual connection of researched relationship**



Source: Designed by author

## 2 Methods

In order to achieve the objectives, the scientific methods of analysis, synthesis, deduction and abstraction were mainly used. Description was the predominant method in the first part of the research based on the findings of current approaches to the issue in question and the achieved results, with an identification of the used indicators for evaluating the efficiency and quality of both the institution of public administration, but also the Region.

During the establishment of the proposal itself the linking of the indicators of the ERA and the QREG, the methods of abstraction and deduction were primarily used. For the confirmation and verification of the established approaches, the achieved results were synthesized and were at the same time verified by interview with selected civil servants in high positions (a majority who were Secretaries or Head of the Secretariat of the Secretary) of the eight Regional Authorities.

## 3 An analysis of the problem

### 3.1 Indicators of efficiency of the Regional Authorities

When measuring performance in the public administration, several types of measurements can be used. Determining its values can be worthless if it appears in the form of isolated, abstract numbers. The usefulness and applicability of the obtained values can be achieved in the comparison of the relevant values.

The real measure of performance in the public administration can be divided into the following four categories: (i) measure of performance (output) can be created for comparing services of an organization and tells more about the activities of the authorities than the work burden of the employees; (ii) measure of effectiveness (often expressed as a unit of costs, or as a unit of production by an employee for a unit of time) expressing the relationship between the services or products and resources needed for their production; (iii) measure of efficiency (output) illustrates the quality of performance or indicates the extent to which the aims of a given organization are fulfilled and its usual form as a measure of timeliness and level of satisfaction of the citizen; (iv) measure of productivity, despite the fact that it is rarely applied, combining elements of effectiveness and efficiency of one

indicator, for example the number of flawlessly executed requests per hour (detailed in [16]).

Methods improving the quality of public administration, and therefore the activities of the Regional Authorities, represent an aggregate of approaches and techniques of leadership for the management of the quality of the organization. This relates to methods leading to a targeted, performance, procedural and system orientated type of management [18].

Among the most significant methods for increasing quality from the standpoint of the most often applied in the condition of the public administration of the Czech Republic belongs the model of the Common Assessment Framework (CAF), the norms of the set of rules from ISO, the method of Balanced Scorecard (BSC), benchmarking (BMK), Local agenda 21 and others (EFQM, Citizen's Charter, EMAS, Six Sigma, Corporate Social Responsibility – CSR).

The model CAF (Common Assessment Framework) is a complex method increasing the quality of institutions of the public sector, therefore also the Regional Authorities. The model is based on the implementation of self-evaluation of nine criteria, five of which concern the prerequisites for achieving results (the method of management, strategy, motivation) and four criteria concerning the achieved aims themselves (outputs) towards the customer/citizen, employees influence on society and the environment [15]. The evaluation of the presented evidence in the limits of the individual criteria of the model of the CAF is realized through a panel of evaluating the assumptions and panels evaluating the result in relation to 0-100 points.

The system of quality according to ISO represents system control and prevention. The system is described in certified norms of ISO 9001, increasing quality and efficiency is described as the norm ISO 9004. The fundamental principle of the norm ISO 9001 is the procedural approach, in which through the help of identification and mutual connection between the management of interconnected activities, it is possible to find the most efficient functioning of the organization.

The essence of the BSC method is a set of balanced indicators. Before applying the methods of BSC it is necessary to clarify the vision and strategic priorities and to transfer the methods of BSC into partial objective strategies, classify balance to these (for example financial conditions) and ability to quantify it [7].

Benchmarking is defined as a systematic process of measuring services, procedures and methods with the best organization in an effort to establish goals for further improvement (according to [12]). Benchmarking is a technique of constant optimization, which compares and analyzes processes (services) with the goal of ensuring the best work (practical approaches), in which the organization is measured against [16].

LA 21 represents a tool for applying the principles of sustainable development on the local and regional level. LA 21 is a process through which the increase of quality of the public administration, incorporating the public and using all available information about sustainable development in the individual areas increases the quality of life [14].

From the standpoint of territorial authority and the extent of competence of the administrative body, including the Regional Authority, there is a difference between the performance of the state administration and the local administration. In the Czech Republic, for the purposes of defining the territorial authority, the regional level is differentiated:

(i) administration of the region is established according to Law No. 36/1960 Coll., regarding the territorial incorporation of the state, as amended and (ii) the administration of the region is created on the basis of Law No. 347/1997 Coll., regarding the creation of the higher territorial self-government units.

When evaluating the efficiency of the Regional Authority, it is necessary therefore to take into account the specifics of performing transferred and independent authority and at the same time the election cycle, as a result of which the leadership can be changed (the Regional Council President, the Regional Council, the Regional Government), while the bureaucratic apparatus does not undergo an appropriate change (which should not occur), which can be schematically described in the relationship (2).

$${}^s P\text{ERA} (\mathbf{a}_i, \text{ii, iii, ..., n})^{t=1-t=0}, \quad (2)$$

where **ERA** is the Efficiency of the Regional Authority evaluated on the basis of **n** of indicators **a**, which evaluates both the performance in independent and transferred authorities in a specific time period  $\langle t=0; t=1 \rangle$ .

### 3.2 Indicators of Quality of Life in the Regions

The Region represents from the standpoint of legislative definition of the territorial association the citizens. The criteria for evaluating the quality of life for the citizens of the region are in a majority of cases formulated on an economic basis, but also on harder to measure non-economic indicators. Among the first group belong primarily financial indicators (Gross Domestic Product per citizen of the region, income, expenditures), and into the second type of indicators such as mortality, safety, air quality etc.

It is evident that many authors formulate the indicators of the quality of life of the citizens in various ways, yet in a majority of cases they present indicators with the assistance of static quantities in a certain moment in time. After logical consideration it can be stated that comparing static quantities expressing a priori different levels of the regions is not possible. Because the regions have various “starting” positions (various levels of development, historical conditions, geographic, demographic etc.), the quality is best able to be evaluated over time, that is, with differing indicators according to relationship (3), which respectively follows the development of a given indicator over time.

$$\text{QREG} (\mathbf{b}_i, \text{ii, iii, ..., n})^{t=1-t=0}, \quad (3)$$

where **QREG** is the Quality of Life in the Region measured by **n** indicators of **b**, while it evaluates the changes in these indicators in the specific time period  $\langle t=0; t=1 \rangle$ .

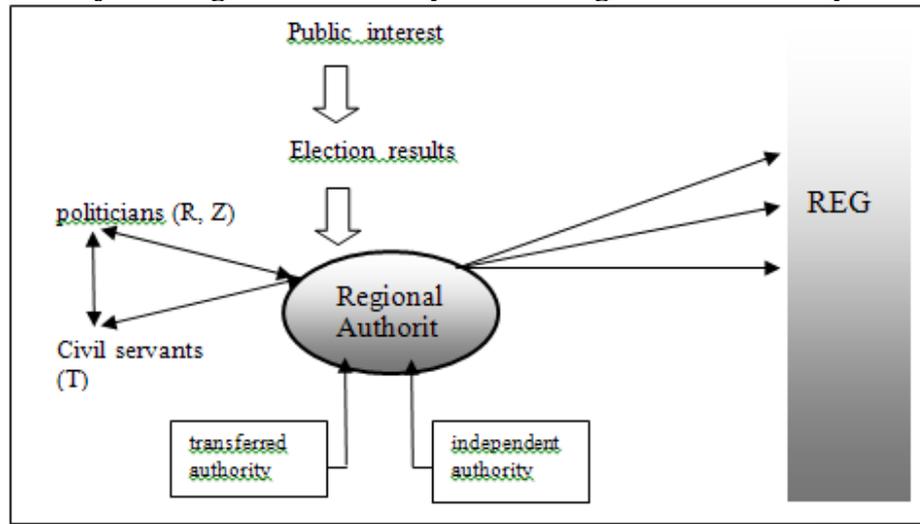
### 3.3 Indicators of interconnection

The aim of the research, which general part is described in this article, is an attempt of linking the indicators of the efficiency of the Regional Authorities and the Quality of Life in the Regions according to relationship (1).

A linking element of this relationship is the citizen, who is understood to be (in agreement with [14]) a so-called customer in the public administration in two roles: (i) an applicant (user) of the Regional Authority or a participant in an administrative proceeding, who expects that his application or needed service will be carried out quickly, without any legal or other inadequacies and in the required standard, and (ii) a citizen of the Region, who expects that it will lead to an increase of the Quality of Life in the Region. It is also specifically in the aforementioned definition connected to the authorized requests. Among the customers there is a limit of authority of requests given by the legal norms and standards, the requirements of the citizens are limited by the authority, financial

and other resources, conditions and legal norms and the principles of sustainable development. From this definition we can expand Figure 1 to a different perspective of the influence of mutual linkage which is illustrated in Figure 2.

**Fig. 2: Influence of the Regional Authority on the Region as a territory**



Source: [Designed by author]

The study [8] offers 11 indicators of the interconnection of the Quality of Life in the Region and the efficiency of the “Regional Government” (terminology used by the aforementioned authors). These are Indicator I. Investment of the Region and support for business and the civil sector (Investment orientation of the Regional budget, subsidies from the Region to business subjects, subsidies from the Region to non-profit organizations), II. Cost of operation of the Regional government (cost of operation of the Regional government), III. Quality of management of the public administration carried out by the Region (position of the Region in competition for public administration), IV. Legislative initiative of the Region (the use of the power of the local government of the Region offering proposals of laws to the Chamber of Deputies), V. Quality of administrative procedures in the framework of transferred authority to the Region (errors in the performance of transferred authority to the Region), VI. Creating conditions for the development of secondary education (index of the changes of secondary education, entrance examinations for eight, six and four-year comprehensive schools, percentage accepted to schools offering school leaving exams and students of the third year of the six-year comprehensive schools and fifth year of the eight-year comprehensive schools out of the overall number who are fifteen years of age), VII. Employment of graduates of secondary schools (unemployment of graduates of comprehensive schools, unemployment of graduates of technical schools), VIII. Creating the conditions for the development of social services (unsatisfied applicants for apartments in homes with nursing care services, the number of people waiting for space in a retirement home), IX. Foreign activities of the Region (permanent representation of the Region in Brussels, presentation events in Brussels, partnerships of the Region with foreign regions), X. Quality of the internet pages of the Region (quality of the internet pages of the region, tools preparing the region for handling questions through the internet), XI. Providing information (quality of the reaction of the Regional Authority to requests from institution for providing information according to Law No. 106/1999 Coll., quality of the reaction of the Region to electronic requests of institution for providing information without appeal to the Law No. 106/1999 Coll., quality of reaction of the Region to written requests of citizens for providing information without appeal

to Law No. 106/1999 Coll., quality of reaction of the Region to telephone requests of citizens for providing information without appeal to Law No. 106/1999 Coll., appraisal of the Region in competitions (Open closed). The study proposing these indicators classifies sources of data necessary for its calculation.

The European set of indicators for sustainable development [11] places preference from an ecological perspective: I. Satisfaction of the citizens with the local community (general satisfaction of the citizens with various features of the local administration), II. Local contribution to global climate change (emission of CO<sub>2</sub>), III. Mobility and local transportation of passengers (daily distance of transportation and method of transportation), IV. Accessibility of local public parks and services (access of citizens to the nearest park and to basic services), V. Quality of local air (number of days with a good air-quality), VI. Travel of children to and from school (method of transportation), VII. Sustainable management of the local authority and local businesses (percentage of organizations applying environmental and social methods of management), VIII. Noise (percent of the population affected by damaging noise pollution in the environment), IX. Sustainable use of land (sustainable development, renewal and protection of land under the local administration, X. Production supporting sustainability (percentage of consumption of goods that are labeled as ecological).

The indicators proposed by Kostecký (compare to [8]) place emphasis on material relevance, which is in the sense of considering the performance of the regional administration in the stated areas and the possibility to gain objective information for measuring the performance of the regional administration. These parameters of the activities of the regional administration are:

- Cost of operation of the regional government,
- unemployment of graduates of technical secondary schools,
- quality of the internet pages,
- investment of the region and support for the business and civil sector,
- quality of management of the public administration,
- legislative initiative of the region,
- quality of administrative activities,
- development of secondary schools,
- employment of graduates of secondary schools,
- development of social services,
- foreign activities of the region,
- providing information.

The research carried out by Honus [6] rested on proposing and verifying the methodological approaches for evaluating the quality of life on the basis of the criteria of the LA21 on the level of the region.

The set of indicators was divided into nine groups: I. **Public administration, level of information, strategic development** (level of information, communication between the public administration, citizens and other subjects, system of planning and management, including urbanism, gaining external financial resources and local financial support,

regional, national and international cooperation, emergency response systems, children and student representation, others), II. **Environment** (waste, protection and revitalization of land, old ecological burdens, green space and clean public and other spaces, air-quality, noise, electromagnetic smog, radiation, drinking water, surface and waste water, energy, animals, protection of nature and biodiversity, others), III. **Healthy lifestyle, preventative health-care, medical services** (prevention of injuries, diet, movement, prevention of obesity, legal drugs – alcohol, tobacco, mental health, non-infectious illnesses, infectious illnesses, other preventative and intervention programs, events and campaigns, health-care services, others), IV **Leisure time, sport, culture, care of monuments, civic life** (opportunities for sport and local recreation, opportunities for culture and civic life, leisure time for children and youths, cultural heritage, monuments and tradition, local patriotism, others), V. **Social issues, housing, socio-pathological phenomena** (social services and consulting, national minorities, housing, preventing and addressing socio-pathological phenomena, social inclusion and removal of barriers, others), VI. **Education and awareness** (conditions for education – schools, educational facilities, libraries, educational centers, programs – Schools supporting health, Safe schools and component activities of schools, services and consulting for parents and schools, specialized education of targeted groups, life-long learning, requalification, awareness of health, transportation safety and awareness, research and development, and others), VII. **Business, economics, the travel industry** (support for business and investment, accessibility and support for local services, support for employment, management quality, travel industry and services for the travel industry, others), VIII. **Agriculture and the countryside** (care for the countryside, agro-tourism, traditional agriculture and craft production, ecologically sensitive methods of farming, forestry, support of agricultural production, forestry and the processing of local products, conditions for life in the countryside, others), IX **Transportation** (transportation network in the region and wider linkage, transportation safety and lessening transportation, public transportation, integrated transportation system and transportation service, pedestrian and cycling transportation, quality of local roads, sidewalks and walkways, support of ecologically sensitive transportation, transportation solution in cities and municipalities, including parking, others).

However, the aforementioned set of indicators and numbers, according to the author, do not take into account the time frame (uneven starting condition in each Regional Authority, and primarily the region as a territorial unit), it only determines the state in a given moments and should be adjusted according to relationship (4).

$${}^s P\mathbf{ERA} (\mathbf{a}_{i, ii, iii, \dots, n})^{t=1-t=0} \rightarrow \mathbf{QREG} (\mathbf{b}_{i, ii, iii, \dots, n})^{t=1-t=0}, \quad (4)$$

where the selected indicator of the Efficiency of the Regional Authority **ERA** and the Quality of Life in the Region **QREG** are evaluated in a specific period of time  $\langle t=0; t=1 \rangle$ , which should contribute to the objective relativizing of the differing starting positions.

Another problem when evaluating the efficiency of the Regional Authority and the quality of life in the Region is the difference between the “nationwide” hierarchies of generally accepted indicators and “local” indicators from the standpoint of their significance for the citizens of a given region. A suggestion is to classify the weight of indicators according to their level of importance, which can be determined through strategic materials of the Regional Authority. In the case that this will be considered, the link will be examined by the relationship expressed in (5).

$${}^s P\mathbf{ERA} (\mathbf{a}_{\alpha^*i, \beta^*ii, \gamma^*iii, \dots, \omega^*n})^{t=1-t=0} \rightarrow \mathbf{QREG} (\mathbf{b}_{\alpha^*i, \beta^*ii, \gamma^*iii, \dots, \omega^*n})^{t=1-t=0}, \quad (5)$$

where the Efficiency of the Regional Authority **ERA** is measured by **n** indicators of **a** with classified weight  $\alpha$ ,  $\beta$ ,  $\gamma$ , to  $\omega$ , which expresses the priorities of needs of the Regional Authority in a given time period  $\langle t=0; t=1 \rangle$  and Quality of Life in the Region **QREG** is measured by **n** indicators of **b** with classified weight  $\alpha$ ,  $\beta$ ,  $\gamma$ , to  $\omega$ , which expresses the priorities of the citizens determined by the political process in the strategic documents of the development of the Region for a given time period  $\langle t=0; t=1 \rangle$ .

#### **4 Discussion**

The problems with determining objective indicators for the efficiency of the Regional Authority and indicators for the quality of life in the Regions are significant. The effort to link them will therefore, for the reason of primary imperfection be significantly difficult and always will require verification in practice.

In the area of evaluation of the Regional Authority, there are many limiting factors, the first of which is the relatively large subjectivity of evaluating efficiency. Other factors can be the level of autonomy for decision-making and often the non-existence of explicitly determined aims and the non-existence of selected systematic problems [10].

At the same time, a direct proportion cannot be set between the quantity of used methods for increasing the quality of public administration at the Regional Authority and a real increase in quality.

In the area of evaluation of the Region (quality of life of the citizens), the central problem is establishing the proportion between the economic and non-economic indicators. The differing weights of these indicators should emerge from the differing priorities of the citizens of a given region.

#### **Conclusion**

In order to evaluate the influence of the effective functioning of the Regional Authority on the quality of life of the citizens themselves in the regions, the tools do not yet exist, which would be able to measure this relationship. This difficulty originates from a lack of objective primary indicators.

The paper discusses the problems in determining the research for potential dependence. It is evident, that before it is possible to proceed to listing, defining, and analysis of the individual indicators, that it is necessary to determine the conditions for taking into consideration the standpoint of time, as well as the priorities of the Region. This fact appears from a practical standpoint to be absolutely essential.

If we will know what is necessary to achieve, where we are heading, that through the assistance of economic analysis we can easier find tools (a framework of indicators) and procedures for achieving efficiency.

The problem remains that an explicit expression and determining the desired state is not completely possible. There always plays a role here of a greater or lesser level of subjectivity. Objective determination of aims in the public administration (the Regional Authority) and in the affected territorial unit (Region) can only be theoretically defined with the stated practice limitation, which will be abstracted during the definition.

The proposed inclusion of the use of such indicators and taking into consideration the differentiated priorities through the help of classifying the weights can nevertheless help to lead to a greater verification of gained results from the research. This will continue with specifically determined individual indicators of efficiency of the Regional Authority and the

quality of life in the Region and through the mathematic-statistical methods to determine possible linkage.

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# LEGAL SUBJECTIVITY IN LABOUR LAW IN THE CONTEXT OF RELATION BETWEEN CIVIL CODE AND LABOUR CODE

**Martin Šmíd**

**Abstract:** *The paper deals with the actual problem of the concept of legal subjectivity in labour law in the context of relation between two main laws in this matter – Civil Code and Labour Code – which is based on the principle of subsidiarity of civil law. It analyses the problematic from a historical perspective since the distinction of labour law legal personality and capacity from classic private law legal personality and capacity in 1965 by issuing the first Labour Code (65/1965 Coll.) until the adoption of the new Civil Code in 2012 (89/2012 Coll.) through all the important historical changes (liberalization of labour market in 1990s, preparation for EU membership, adoption of New Labour Code in 2006 etc.). The conclusion is devoted to the consequences of the new Civil Code (89/2012 Coll.), which was issued in 2012 and shall be effective on 1<sup>st</sup> January 2014, for the adaptation of labour law in the area of legal subjectivity.*

**Keywords:** *Labour law, Civil law, Legal personality, Legal capacity, New Civil Code, Employer, Employee.*

**JEL Classification:** *K12, K31.*

## Introduction

In this paper I will deal with the nature of the labour law capacity in relation to the general legal (hence private) personality in relation of the Labour Code (262/2006 Coll.) to the new Civil Code (89/2012 Coll.). So I will specify the legal personality (under the current legislation, eligibility for rights and obligations) and the legal capacity (according to current legislation, capacity to legal actions) in labour law after the adoption of the new Civil Code.

First part is focused on the description of the conception of legal subjectivity in labour law today and in the past, including explaining the reasons for existence for independent legal subjectivity in labour law.

Second part explains the problems which are connected with this concept, which is – from the current point of view (and from the point of view of traditional legal science) – understood as wrong and also the new legislation (New Civil Code) follows the idea of restoration of traditional terms “legal personality” and “legal capacity” [6].

Third part includes the possible and planned changes of labour law legislation after adoption of the New Civil Code which shall be effective since 1<sup>st</sup> January 2014.

Finally, the conclusion summarizes them and their effect on understanding of legal personality and capacity of employees and employers in labour law, respectively confronts it with the more conform understanding of them as contract parties (contractors) instead as subject of labour law as completely independent branch of law which concept was prevalent during the times of the socialism and was still present in the old Labour Code till 2006 (and in some extent in the New Labour Code 262/2006 Coll.).

# **1 Roots of today's conception of legal subjectivity in labour law**

## **1.1 General description of today's conception of legal personality and capacity**

The current concept of labour law subjectivity is still based largely on the socialistic concept that rejected dualism of private and public law and was based on the idea of separate legal branches (with a completely independent legislation).

This has had an effect on the labour law, which "emancipation" in this direction was completed by the adoption of the Labour Code (65/1965 Coll.) in the mid-sixties. [9] [10]

Therefore we can today still speak about the idea of labour law relations which are relatively independent on civil law relations regulated by Civil Code. Labour law relations are social relations incipient in the connection to the process of employment which are regulated by law. Following this we speak about subjects of legal relations who are the holders of rights and duties in these relations [7].

The understanding of independent labour law relations independent on civil law relations was even more visible in older literature – mainly before adoption of the New Labour Code (262/2006 Coll.) in 2004 [8] – but even after that in 2007 [5].

Anyway, this conception in literature was based on the terminology in Labour Code which used the term “Participants of labour relations” till 31<sup>st</sup> December 2011 and was replaced by term “Contract parties of basic labour relations” since 1<sup>st</sup> January 2012 which is also more logically consistent with the current civil law conception [4] and traditional legal theory.

## **1.2 Historical origin of the conception and its consequences**

The development of the labour law branch follows the general legislative development. Originally, the labour law had been seen as part of the civil law (labour contract) and public law (social security legislation). By codification of labour law in 1965 by issuing of the 1965 Labour Code, labour law became independent pedagogic and scientific branch of law. [9]

This independence resulted primarily in duplication of some legislation affairs for individual private law branches separately. Respectively, it can be said that the principle of strictly separate legal branches was typical for the legislative work throughout the whole Czechoslovak legal system and lead to existence of relatively independent branches of law in whole system (including untraditional ones like economic law) and the dualism of public and private law was abandoned. Anyway this development was not automatic in all countries of the socialist block in Eastern Europe. Many of these countries never adopted such conception [10] which can be understood as “extremely socialistic”. Generally, we can say that Czechoslovak and East-German law were the most progressive in socialization of law (even in wider extent than law in USSR). [9]

For the labour law it was not possible to use subsidiary the Civil Code for a number of general institutes (e.g. counting of time, legal subjectivity, etc.) because of this separation of legal branches.

Labour Code No. 65/1965 Coll., was seen as a legal regulation of a complex nature, and regulated all general legal institutes independently; therefore unnecessarily duplication of regulation occurred. Before that - till 1965, the use of Civil Code (per analogiam) was necessary due to the lack of specific labour law regulation and was commonly accepted by judiciary praxis. In process law the influence of civil law was (till 1965) even stronger. [10]

Generally, the independency of labour law evolved continuously after 1948 because labour was no longer understood as goods (commodity) like in the capitalist economy.

Therefore, civil law – which is by nature property law – shouldn't regulate the dependent work for ideology reasons. Important consequence of this excluding of labour relations from civil law was abolition of contractual freedom from labour law and its strict regulation with only cogent norms. [10] The persons' autonomy was limited in the whole legal system but in labour law it was on much more strict level than in the civil law which kept the contractual freedom in relations between individuals in some extent.

### **1.3 Independent legal subjectivity in labour law**

In the a separate labour law occurred also the independence of labour subjectivity which was newly more or less separated from the eligibility for rights and obligations (hence the capacity to legal actions) given by Civil Code. That was associated with the independence of labour relations on civil relations at all and the fact that the contemporary law did not allow an umbrella term of private (civil) legal relationships, which conception was based on the above-mentioned fact of separation of legal branches.

The Labour Code 65/1965 Coll. (the old Labour Code) provided in its original version of § 1: *During the participation of citizens in social work labour relations arise between citizens and socialist organizations. These relations are governed by the Labour Code.* [2]

Some linkage to the Civil Code 40/1964 Coll. (the old Civil Code) there may appear to be in the use of concept of citizen and socialist organizations. These persons are defined as participants in civil relations in the old the Civil Code, Part One, Chapter Two.

However, you can legitimately say that labour and civil law are again independent and Labour Code could manage without civil legislation bypassed (and vice versa).

The old Civil Code stated about the legal subjectivity that the eligibility of an individual to have rights and obligations occurs at birth and the capacity to legal actions is acquired by full majority. The socialist organizations were, according to Civil Code, public, cooperative and social organizations and other organizations whose activities contribute to the development of socialist relations. [1]

The legal definition in old Labour Code was very close. The definition of socialistic organization was exactly the same (remarkable fact is, that in civil relations individuals were filed first and organizations second and in labour law the order was opposite).

On the other hand, the subjectivity of an individual worker was regulated differently. It began in the calendar reaching the age of 15 (and accomplishment of obligatory school attendance) for both legal personality and legal capacity. [2] We can say and it was interpreted that way in the labour law literature that in labour law the legal personality and legal capacity merges in the one concept of labour law personality. [8]

Therefore, both regulations – the regulation in Labour Code and the regulation in Civil Code – could be applied independently. This principle was indeed one of the leading ideas of the old Labour Code. It was a separation of labour law from other legal sector, particularly from civil law, therefore it was necessary that the Labour Code set quite general issues, such as legal personality, the adjustment of the legal acts and their invalidity, etc. [10]

## **2 Problems connected with the concept of legal subjectivity**

### **2.1 Defects of the definition of legal subjectivity in the old Labour Code**

An important moment of this independence, which was mentioned only briefly in the previous text and it should be emphasized: the Labour Code speaks there about workers and socialist organizations in terms of participants in of labour relations in general, even though they are in fact primarily a contract partners of the employment relationship (employment); particularly the use of the term (socialist) organizations in this regard is inappropriate - obviously from today, not from the former view.

This change was necessary due to the complete separation of labour and civil law, and this issue will be concretized in following text.

Starting from the current understanding (especially with regard to the adoption of the New Civil Code which includes the labour relations systematically in the frame of other obligations [4] [6]) the definition of employee and employer should be approaching the definition of contractors (contract parties) rather than subjects of law [12] and should be understood that way in legal praxis and literature.

The employee and employer (as pair-terms) are logical equivalent of other conceptual pairs as of as pairs like the seller - the buyer or the lender - the borrower: the relations arising from obligations. Compared to that, old Labour Code (the original version) equated its formulation as well as the used terminology (worker - socialist organization) rather with concepts of natural person or corporation (individual - socialist organization) used by the old Civil Code as a base for all civil relationships possible. In similar way, the definition of worker and socialist organization in Labour Code was base for labour relations (and not only a definition of contract parties in contract about dependent work).

This concept was unsustainable even that time, for example by counting only more or less with labour relations concluded between the citizen (individual) and socialist organization (§ 27 section 2).

Labour relations between citizens or employment relationship with a "non-socialist organization" are mentioned only marginally (§ 268-270). Among the citizens, employment could be arranged only to provide services for personal use; employment of other persons for the purpose of business was excluded, which implied also from the opening articles of the old Labour Code [2] – prohibition of exploitation of man by man – and from the comprehension of labour in socialistic theory in general (as mentioned before, labour was not understood as commodity which could be sold or bought like goods).

### **2.2 Legal subjectivity problem in the light of recent legal changes**

The social changes after 1989 proved to be necessary to carry out also the reform of labour law. They occurred thus through the adoption of the Employment Act (1/1991 Coll.), The Collective Bargaining Act (2/1991 Coll.), Laws on wages and salaries (1/1992 Coll. and 143/1992 Coll.). An important amendment to the Labour Code was the Act 74/1994 Coll., which also replaced the terms worker - organization by terms employee - employer. Since the end of the 1990s the Czech labour law gradually adapts to EC Law (in particular, by the amendment 155/2000 Coll.) including regulation against discrimination. [9]

In this connection, things that failed to be changed during the transformation can be also mentioned: especially high level of cogency of the Labour Code. This law was still built

on the principle of "what is not allowed is forbidden" which was typical for the socialistic law and couldn't be accepted in modern democratic society. Second thing that stood "frozen" regardless social, economic and legal changes (in other branches) was pending, because de jure non-existent, relationship to the Civil Code.

For this reason, in legislation and consequently in the literature [8] a separate concept of labour law subjectivity lasted even after the introduction (return) of terms employee - employer.

The policy change should occur by the adoption of the new Labour Code, which was enacted in 2006 (262/2006 Coll.) with effect since 1st January 2007. It finally returned to the general principle of "what is not allowed is forbidden", hence the relationship to the Civil Code was not very satisfactorily resolved.

The new Labour Code in its original version was built on the principle of delegation, mentioned in § 4 [3]. Application of the Civil Code remained limited to situations in which it was referred directly by the Labour Code, and was so very unclear. It was also one of the reasons why the Constitutional Court cancelled part of Labour Code provisions by its Decision 116/2008 Coll.

The Constitutional Court summarized that civil law is a general private law subsidiary applicable to all private sector (including labour law); regulations governing this branch have always priority over the general regulation, but in case they do not provide a specific question, the civil law should be used. Method of delegation listed in § 4 of the Labour Code torn apart functional links to general private law and brought considerable uncertainty into labour relations. Therefore it shall be abandoned and the Constitutional Court abolished the § 4 of the Labour Code. [11]

Only by effect this judgment thus the traditional relationship of subsidiarity between civil law (as a general private law) and the labour law (as special private law) begins to apply.

However, the definition of contractors in employment relationships, especially the employee remained to some extent tributary to the original regulation of labour law and defined the subjectivity independently.

Some change was brought up by amendment since 1<sup>st</sup> January 2012. Although the actual content of that legal provisions has not changed significantly, the relevant part of the Labour Code is renamed "Contract parties of basic labour relations" rather than as "Participants of labour relations." The legislative shift to an understanding of employee and employer purely as contracting parties is evident here regardless the previously mentioned fact that the definitions didn't change.

Only change was the omission of direct links to the Civil Code (§ 6 section 2, § 8), representation and responsibility of employers in labour law relations (§ 7 section 2), redefinition of position of the state in labour relations (§ 9), omission of other thing which can be solved only by the Civil Code, including legal acting (§ 10 section 2, § 11 section 1, 2 and 3 and § 12).

### **3 Future legislative and conceptual changes in labour law based on the adoption of New Civil Code**

#### **3.1 General view on future changes**

Other changes should occur in connection with the adoption of the new Civil Code, which should be effective since 1st January 2014.

A major change will be particularly terminology. Following the abandonment of "eligibility for rights and obligations" and "capacity to legal actions" by the Civil Code they will be replaced by traditional terms "legal personality" and "legal capacity" [4]. This is connected with the abandoning of the concept of "legal act" or "legal transaction" as a single part of legal acting. With the New Civil Code we will have only the legal acting. [6]

The new Civil Code takes the basic status matters (legal subjectivity, divided to legal personality and legal capacity) into its content. Therefore, the existence of a special "capacity to labour transaction" or "labour majority" as it is de facto (under another name) in relation of the current Labour Code and the old Civil Code, is no longer sustainable.

#### **3.2 Concrete legal changes of labour law legislation included in the New Civil Code**

The concrete changes of labour law matter included in the New Civil Code are regulating the legal acting of minors. The capacity of minors to enter into labour relations is expressed in the New Civil Code in three provisions.

Firstly, § 34 says that dependent work of minors under the age of fifteen years or minors who have not completed compulsory schooling, is prohibited (these minors may perform only artistic, cultural, sporting or advertising activities).

Secondly, (§ 35 section 1) provides: A minor who is at least fifteen years of age and completed compulsory schooling, may commit for performance of dependent work pursuant to other legislation.

Interesting change (and increase of the role of the parent as a guardian of the minor) is included in § 35 section 2. It gives to the guardian of the minor (under age 16) the right to terminate the employment of the minor in case it is in concern of education, development or health of the minor. [4] [6] Anyway the way of doing so need to be concretized by "other regulation", so it should be transformed in Labour Code (before New Civil Code come to effect).

For adult employees their legal capacity (including labour) is self-evident and does not need special regulation.

### **Conclusion**

I think that by having such legislation in the new Civil Code, it is not necessary to define the labour subjectivity in the Labour Code in a special way. Should Labour Code to define the employee, then already purely as a party to the basic labour relationship/contract (i.e. in the sense that an employee is the one who commits to undertake dependent work); legal personality of its employee and his legal capacity is fully resulting from the Civil Code as a general law.

The only moment that will have to be in the Labour Code separately emphasized, is that only a natural person may enter into an employment relationship as an employee (naturally, legal person cannot exercise dependent labour).

About the employer applies more or less the same, although in this case the current definition in § 7 can be acceptable in the changed new concept: The employer (for the purposes of the Labour Code) means any legal or natural person who employs an individual in an employment relationship [3].

Although it would be sufficient to say it by even simpler definition: The employer is one who employs an individual in an employment relationship. Indicating that an employer may be a legal or natural person is redundant here; the capacity of both legal and natural persons to employ an employee is self-evident.

Finally, we can add that the actual content of employment is not solved in the New Civil Code. Even though it contents Part Four, Chapter II, Title called "Employment", leaves it entirely to Labour Code, respectively generally to other laws (§ 2401).

But even the inclusion between contract types indicates closer links of Labour Code to the New Civil Code, than it is today, and final elimination of duplicated regulation from the Labour Code, which will also affect the legal personality and the legal capacity mentioned in this article.

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# THE USE OF COST MANAGEMENT TECHNIQUES AS A STRATEGIC WEAPON IN SME'S

Markéta Špičková

**Abstract:** *In this paper, it will review the Strategic Management Accounting concepts focusing on the selected strategic cost calculation in the small and medium sized companies. It will describe different views of costs and classify of basic characteristic of Strategic Cost Calculation. There will be also comparison of strengths & weakness of the strategic cost management methods. The purpose of this paper will discuss the advantages and disadvantages of the Strategic Cost Management Techniques and also how these strategic techniques could help manage SME's. The attention is focus on the Activity Based Costing, the Life Cycle Costing and the Target Costing. No doubt that these three tools can bring a success in management of the competitive strategy, but currently this topic needs more next qualitative researches. Some author's ideas for next survey are mentioned in this paper.*

**Keywords:** *Strategic Cost Management, Strategic Management Accounting, Activity Based Costing, Target Costing, Life Cycle Costing.*

**JEL Classification:** *D24, M41.*

## Introduction

Today's companies are having a myriad of strategic cost management tools (SCM) to choose from according to their needs. The traditional management accounting was transformed to strategic management accounting (SMA) which supports the strategic approaches. Several SMA techniques appear to be used in Czech companies as they are in other countries investigated in different studies. For example Cinquini and Tenucci [8] describe that Customer accounting, competitive position monitoring, competitor performance appraisal based on published financial statement and quality costing represent the most widely used SMA techniques in their sample. SCM-oriented surveys and case studies have trend to focus on the connection between particular elements of the Cost Management Systems (CMS) and the specific strategy adopted by the firms under a contingency theory approach. The current issues of Czech companies (SME's) are described in this paper.

Based on the results of the research [41] examined the impediments to selling goods and services, as reported by European business owners, as well as their judgments about their profitability, and their plans for the future. The results of Robinson's survey show that "competition and lack of demand were the two most common reported impediments to sales, a significant proportion of people experienced difficult in pricing and struggled with a lack of marketing skills"[25]. For instance U. S. manufacturers have a lot of experience with using an integrated cost management approach who is help to achieve strategic advantage. The U. S. study [17] says: "however many organizations are implementing these techniques concurrently as they move toward a more robust and responsive approach to strategic cost and resource management."

The paper aims to familiarize readers with the existence and potential use of Strategic Cost Management Techniques, the benefits that costing brings and the difficulties associated with costing, and where costing can be used in practice.

## **1 Literature Review**

### **1.1 Strategic management accounting and his cost management techniques**

Strategic management accounting focuses on the costs and prices which are significant factors of competitiveness and also have an important effect on company performance. “By evaluating their performance on each of these (strategic, operational, financial) levels, organizations can better understand the impacts of strategy, customer and supplier behavior, and internal process performance on their effectiveness and profitability”[17]. Contemporary enterprises and their business environment is characterized by discontinuities, surprise, global threats (e.g. the global economic crisis), technological changes, shorter life cycles of products and services, ecological challenges [14], prices are now determined by the market [29]. In the current competitive business environment, markets determine prices. Thus firms need a competitive pricing strategy for their survival. Ideally prices should always recover the costs but sometimes the situation is opposite, in which case the price does not recover the costs because prices are determined by the market.

It has been long-established that traditional costing systems are inadequate and therefore managerial accounting has been transformed to include strategic elements and consequently it helps managers to strategically manage their business. Today, costs need to be controlled in terms of long-term development because the short to medium-term view which has been applied to date has ceased to be sufficient. What has caused the previous traditional management accounting systems failed? With the advent of new technologies, products are no longer burdened by direct labor as they did before, and the share of overhead costs on a product has changed to a completely opposite position [14]. Previously, direct labour and other direct costs accounted for a large part of product costs while overhead costs accounted for a small component as compared to the current situation. Today, a major share of the product is represented by overhead costs, and direct costs no longer constitute the dominant position as before.

Currently, cost management activities are based upon one or more views of cost which have distinct levels of detail and different purposes as well, as the shown in the following table.

**Tab. 1: Different Views of Cost**

<b>View of Cost</b>	<b>Strategic</b>	<b>Operational</b>	<b>Financial</b>
<b>Users of Information</b>	<ul style="list-style-type: none"> <li>• Business/strategic planners</li> <li>• Sourcing Gross</li> <li>• Capital budgeting</li> <li>• Cost engineers</li> </ul>	<ul style="list-style-type: none"> <li>• Front-line managers</li> <li>• Process improvement teams</li> <li>• Quality teams</li> </ul>	<ul style="list-style-type: none"> <li>• Financial controllers</li> <li>• Tax managers</li> <li>• Treasury</li> <li>• Tax authorities</li> </ul>
<b>Uses tools/ techniques</b>	<ul style="list-style-type: none"> <li>• Activity-based product costing</li> <li>• Target Costing</li> <li>• Make or buy analysis</li> <li>• Investment justifications</li> <li>• Life cycle costing</li> </ul>	<ul style="list-style-type: none"> <li>• Key Performance Indicators</li> <li>• Value/non-value added identifiers</li> <li>• Manage daily Activity</li> </ul>	<ul style="list-style-type: none"> <li>• Shareholder reporting</li> <li>• Inventory valuation</li> <li>• Preparation of tax reports</li> <li>• Lenders monitoring condition</li> </ul>
<b>Level of Aggregation</b>	<ul style="list-style-type: none"> <li>• Product line aggregation</li> <li>• Information detail based on type of decision</li> </ul>	<ul style="list-style-type: none"> <li>• Very detailed</li> <li>• Work unit level</li> </ul>	<ul style="list-style-type: none"> <li>• High</li> <li>• Often company wide data</li> <li>• May be on legal</li> </ul>
<b>Reporting Frequency</b>	<ul style="list-style-type: none"> <li>• Ad hoc, as needed</li> <li>• Usually a special study</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate</li> <li>• Possibly hourly or Daily</li> </ul>	<ul style="list-style-type: none"> <li>• Periodic, usually monthly</li> <li>• Probably quarterly or annually if other needs were met</li> </ul>
<b>Type of Measures</b>	<ul style="list-style-type: none"> <li>• Combination of physical and financial</li> </ul>	<ul style="list-style-type: none"> <li>• Mostly physical</li> </ul>	<ul style="list-style-type: none"> <li>• Mostly financial</li> </ul>
<b>Usage of Capacity</b>	<ul style="list-style-type: none"> <li>• Define of capacity Resources</li> <li>• Idle/Unequal capacity</li> <li>• Changes of capacity</li> <li>• Theoretical capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Practical capacity</li> <li>• Sometimes optimal capacity</li> <li>• Idle/Unequal capacity</li> <li>• Changes in practical/optimal capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Real installed capacities</li> </ul>
<b>Time Focus</b>	<ul style="list-style-type: none"> <li>• Future</li> </ul>	<ul style="list-style-type: none"> <li>• Current</li> </ul>	<ul style="list-style-type: none"> <li>• Historical</li> </ul>

*Adjusted by source: [17]*

The next author's surveys will focus on the research questions which was drawn based on the literature review mentioned in this paper. The attention will focus on "relative" new Strategic Cost Management Techniques which could be used in the Czech SME's. Some case studies [17], [23], also have focused on the implementation and usage of Strategic Management Accounting (SMA) techniques in world companies. Based on the extensive literature review were formulated the following research questions: 1. Does SMA techniques usage different with regard to the size and type of enterprises? 2. Do SCM

techniques help to achieve competitive advantage? 3. Do SCM techniques help in making good pricing decisions? 4. Do SCM techniques help to achieve higher profitability?

The purpose of this paper will discuss the advantages and disadvantages of the Strategic Cost Management Techniques and also how these strategic techniques could help manage SME's.

It is an assumption that usage of SCM techniques isn't so frequent in present companies. Based on the few previous surveys [8]; [17]; [6] were registered these results who show that "Lower usage scores are registered for most of the costing techniques, except for quality costing, with the lowest position covered by life cycle costing". The usage of SCM techniques will be researched using local surveys of Czech SME's. In comparing the previous similar survey [20] of the Czech medium and large enterprises with present, can be assumed that the most Czech SME's aren't using the mentioned cost management techniques with the strategic components. The following table describes some strategic cost management tools which were mention in Table 1.

**Tab. 2: Description of Strategic Cost Calculation**

SCC	Basic characteristic
<b>Activity Based Costing</b>	The technique has been developed by Cooper and Kaplan around 1980' in USA. It is based on the definition of the activities performed by the company; there are considered the ultimate causes of indirect costs. The individual activities can be measured by the cost drivers. ABC strategic focus consists in supporting the management of the activities through which it is possible to define actions aiming at achieving a competitive advantage. This ABC calculation is mostly used by US companies and the top companies in Europe.
<i>Sources:</i>	[8]; [17]; [39]; [14]; [33]
<b>Life Cycle Costing</b>	First studies about the Life Cycle Costing were published around 1989'. It aims at calculating the total cost of a product throughout its life cycle (from the design to the decline, through introduction, growth and maturity). The calculation of LCC and strategic price-setting apply to the entire product life cycle. It's clear long-term accounting perspective and market orientation make it part of the group as SMA techniques. In a similar vein, total cost of ownership has been underlined as a long-term and strategic orientation SMA tool. Enterprises that want to record their environmental costs can use the concept of LCC which is also beneficial in this area of cost management.
<i>Sources:</i>	[3]; [5]; [17]; [20]; [14]; [24]
<b>Target Costing</b>	"Target costing is not a new development, it's use has been documented since at least the mid-sixties"[38]. Target cost results from the difference between the product price, derived from how much the market is willing to pay, and a desired target profit. Through an accurate product design, the costs must be contained to achieve the target cost. External market factors intervene frequently in this SMA technique. Target costing is especially beneficial for firms that have to ration the number of products they produce.
<i>Sources:</i>	[7]; [14]; [17]; [38]

*Source: It is written based on the literature review.*

Based on the features of these SCM tools, it could be said that all these techniques are crucial to the achievement of company competitiveness and profitability. "The newer approach to strategy from the aspect of costs and achieving business success is that it represents a unique and sustainable way in which the company creates value" [14]. What opportunities for creating value do present enterprises have? For instance team of authors [14] agree that currently opportunities are moving from material resource management to management in the sphere of strategies based on knowledge, which affirm intangible resources. This is a major reason for the need for the development of new "tools", which in the 21st century denotes assets based on knowledge and strategies of creating value, whose realization they make possible. The necessary premise is that those make decision in production and service organizations can effectively implement company strategy, as well as price strategy only, when they understand them completely. And it isn't possible without a clear understanding of the ways and steps which they may contribute to business

success [8]; [17]. For usage these strategic cost management tools are necessary for the complete analysis of enterprise's environment.

## **1.2 SME's definition and statistical information about them**

There are SME's in virtually all modern economies. SME's have an important role in certain economies and markets. The some statistics mention that SME's represent 90% - 99% of the all enterprises in a state [25]. Currently, Czech SME's are followed by a basic uniform definition of the European Union.

The European SME's Definition is rather complex. It defines "SME's as an enterprise that employ less than 250 persons and has an annual turnover not exceeding 50 million Euros and/or the assets of balance sheet doesn't exceed 43 million Euros" [29]. The SME User Guide [41] mentions that there are three levels of SME's. The first level is typically an enterprise with less than 10 employees and assets or annual turnover of less than or equal to 2 million Euro. This level is called The Smallest Business. In the second level the enterprises has to have less than 50 employees and the assets or annual turnover should not exceed 10 million Euros. This level is called Small Business. In the third level the enterprises have less than 250 employees but more than 50 employees and their assets do not exceed 43 million Euros or their annual turnovers do not exceed 50 million Euros. This level is called Medium-sized Business.

For a more detailed understanding of Czech SME's, please see on website of the Ministry of Industry and Trade (MPO) [39]. Because the research questions are focused on Czech SME's the information from the website MPO will help the reader better understand the basic attributes of Czech SME's. There was 1 066 787 SME's of 31st December, 2011 in the Czech Republic. This number can be divided into 814 897 SME's which are an individual persons and 251 890 SME's which are a corporate entities. The quotient of SME's from all enterprises was 99,84% in the Czech Republic. The quotient of SME's added value was 54,43% in last year. The number of SME's declined year-over-year by about 25 598 enterprises. This represents the main reason why the research is focused on SME's. Accordingly, their strategic cost management is of particular importance, which is also the topic of this paper.

China's study [14] states that: "Strategic management ideas are significant in enterprises financial management since we must make efforts to analyze and grasp the general environment and development tendency of an enterprise and therefore to improve the adaptability, changeability and applicability of financial management to uncertain environment."

Currently, quite a lot of small and medium enterprises don't have realized the importance of strategic environment for the establishment and implementation of financial strategies and accordingly failed to have proper analysis on their strategic financial environment especially its internal environment.

China's study [14] mentions that at present, most small and medium enterprises have no systematic and complete budget system made up of sales budget, production cost budget, general indirect cost budget, loss and expense budget and cash budget and so on. "Even if some have such a system, its shortage of careful budgeting and strict implementation also lessens the role of budgeting as well as the implementation of financial strategies" [14]. Mentioned situation is similar as in Czech SME's.

## 2 Comparison of Strategic Cost Management Techniques

Based on different characteristics and published case studies, each cost calculation has its benefits and limitations in the aspects of management accounting. The most significant are clearly summarized in the following table.

**Tab. 3: Strengths and Weakness of Strategic Cost Calculations 1/2**

SCC	Strengths	Weakness
<b>Activity Based Costing</b>	<ul style="list-style-type: none"> <li>• an appreciation for the potential benefits of an ABC system may suggest to the marketing manager that a change to an ABC system will be desirable. In this case, the marketing function can join with other users who may benefit from ABC cost data to push for a change;</li> <li>• ABC/M is suitable for service organizations, while traditional costing is irrelevant for them which diminished the endless disputes between the marketing and production departments;</li> </ul>	<ul style="list-style-type: none"> <li>• some overhead absorption costs and old projects are uneasy to allocate;</li> <li>• the cost of a sales representative's engaging in nonstandard selling activities is often excluded from his or her performance review;</li> <li>• ABC is based on subjective arbitrary cost allocations;</li> <li>• when the production volumes change, ABC cannot predict profits, therefore it is not adequate for decision-making;</li> </ul>
Sources:	[7]; [14]	[7]; [14]; [33]
<b>Life Cycle Costing</b>	<ul style="list-style-type: none"> <li>• LCC analyses are able to systematically take into account the cost aspect in design decision making and also to find out the factors that had the largest effect on the total life cycle cost;</li> <li>• an established customer base provide justification for "spend to save" decisions;</li> <li>• enable decisions to be better informed and enable a program or process to be monitored more effectively;</li> <li>• when selling a product or service based on the lowest life-cycle cost, it's important that all the benefits are presented clearly so the customer can make a fully informed decision;</li> </ul>	<ul style="list-style-type: none"> <li>• achieve feedback occur for the benefit of everyone both inside and outside the organization;</li> <li>• if LCC reveals any negative effects or development in most cases it is not possible to prevent these phenomena or to eliminate or otherwise control them;</li> <li>• costing allocates the full cost of the product and it takes all the constraints imposed by the concept of absorption calculations at the level of the full costs;</li> </ul>
Sources:	[14]; [23]; [25]; [20]	[38]; [44]

*Source: It is written based on the literature review*

**Tab. 3: Strengths and Weakness of Strategic Cost Calculations 2/2**

SCC	Strengths	Weakness
Target Costing	<ul style="list-style-type: none"> <li>• there is strong support in the literature for a positive relationship between the intensity of competition and benefits and adoption of TC;</li> <li>• intense competition creates a need for TC;</li> <li>• TC increases the probability that the new products launched will be inside their survival zones because the competitive pressure faced by the firm is passed on to designers and suppliers in the TC process;</li> </ul>	<ul style="list-style-type: none"> <li>• static character of TC calculation;</li> <li>• when will decrease so much the enterprise costs as a result of TC;</li> <li>• imprecise or incorrect estimate of future costs as well as the estimate of research &amp; develop costs, that can bring the limitation of usage TC calculation;</li> <li>• real estimate of future costs and pricing is very complicated process;</li> </ul>
Sources:	[1]; [4]; [13]; [17]; [20]	[33]; [38]

*Source: It is written based on the literature review.*

From this comparison it follows that the Strategic Cost Management brings mostly benefits to organizations. Based on the analysis, it is apparent that most SMEs can benefit Strategic Cost Management Techniques. In the next section, I will discuss how SMEs can use SCM tools in practice.

### 3 Discussion

The concept of Activity Based Costing it is intended to support strategic decisions and to focus management’s attention on resource consumption. This concept can be used by companies that produce many pieces of the different products that share overhead costs [8]; [14].

Life Cycle Costing is used to manage profitability of products over their entire life cycle; that is, from the early stages of idea generation, R&D and introduction, through the middle stages of growth and maturity to the late stage of decline. This approach is mostly used in companies with extensive research and development and also technical preparation of production or It can be used by companies that focus on environmental management accounting [44]; [33]; [38].

Target Costing is intended to manage enterprises that focus their attention on the price customers are willing to pay, and use that as a basis to produce a product at a cost that yields some desired profit. e.g. Popesko [33] finds it used in competitive industries where prices are more likely to be determined by market conditions. For instance, as [17] puts it, “Target costing is a management method that allows firms to provide customers with products that they want, when they want them, at a price they can afford, and still earn adequate financial returns. Target costing is strategic in nature and, if done properly, it creates a culture of excellence in an organization that provides continuing strategic advantage. It is more than a narrow focus on improving operating efficiencies or meeting cost budgets.” [17]

Researchers agree on the fact that is necessary that enterprises know and understand their activities and the associated costs and result. It means the activities that are performed by suppliers and customers and the impact on product and service effectiveness and profitability. Freeman [17] describes ways to use several SCM tools in large companies.

Freeman's results show that the usage of SCM tools have positive influence on the increased profitability and supports long-term profitability as well as related strategic decisions.

This discussion confirms the increased relevance of SCM and also the need of more research in this area. More research of SCM tools that focus on qualitative research techniques is needed as this would allow for more nuanced interpretation of the relative effectiveness of diverse SCM techniques. So far, researchers employing surveys have found SCM tools have a positive effect on contemporary enterprises.

## **Conclusion**

In this paper, I have reviewed the Strategic Management Accounting concepts focusing on the most significant strategic cost calculation. I have described different views of costs in Table 1 and classified basic characteristic of Strategic Cost Calculation in Table 2. There is also comparison of strengths & weakness of the strategic cost management methods. The selected studies show that several strategic cost management tools applications can be integrated in the enterprise's cost management and pricing decisions.

Most of the research presented in this paper, have focused on such issues as what SCM techniques are used by what kinds of firms, but not necessarily how [e.g. 5]. To help answer the question of "how" SCM techniques are used, a survey and qualitative research approach can help better capture how the techniques are being used.

For instance Zongsheng's study [39] mentions: "Due to their different characteristics, small and medium-sized enterprises have to establish their own financial management strategies instead of copying those of the large enterprises." For example, surveys can be used to investigate the extent to which, and how Czech SMEs use SCM techniques.

No firm uses a fully integrated system of strategic cost management that incorporates all of these approaches. However many large enterprises are using several of these techniques concurrently. The techniques discussed are helping these companies move toward a more robust and responsive approach to strategic cost and resource management.

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